Concord
NORTH CAROLINA

Debris Management Plan

April 14

2011

This Debris Management Plan identifies the actions required to plan for and respond to a natural debris-generating event. The plan is designed to identify departments and activities that are involved in debris operations to ensure a coordinated response.

A Hazard-Specific Appendix to the Concord EOP

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We the undersigned have reviewed Debris Management. We accept the responsibilities pertaining to our organization as defined in the plan and will respond as required in the event of an emergency, disaster or plan implementation.

Department	Name	Date
Administration		
Aviation		
Building and Grounds		
Business and Neighborhoods		
Communications		
Developmental Services		
Electric Systems		
Engineering		
Finance		
Fire and Life Safety		
Fleet Services		
Human Resources		
Parks and Recreation		
Police		
Pubic Information		
Storm Water		
Transportation		
Wastewater Resources		
Water Resources		
Solid Waste and Recycling		

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RECORD OF CHANGES

Description of Revision	Date Revised	Date Distributed	Revised by
Adoption			
Department Signatures			

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Electric Utilities			
Engineering			
Finance			
Fire and Life Safety			
Fleet Services			
Housing			
Human Resources			
Parks & Recreation			
Planning & Community Development			
Police			
Storm Water Utility			
Transportation & Streets			

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Waste Water		
Water Resources		
Cabarrus County EM		

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Chapter 1: Introduction

Background

The Federal Emergency Management Agency (FEMA) encourages state and local governments, tribal authorities, and private non-profit organizations to take a proactive approach to coordinating and managing debris removal operations as part of their overall emergency management plan. Communities with a debris management plan are better prepared to restore public services and ensure the public health and safety in the aftermath of a disaster, and they are better positioned to receive the full level of assistance available from FEMA and other participating entities.

Purpose

This Debris Management Plan identifies the actions required to plan for and respond to a natural debris-generating event. The plan is designed to identify departments and activities that are involved in debris operations to ensure a coordinated response. The purpose of the plan is:

- to provide organizational structure, guidance, and standardized procedures for the removal and disposal of disaster-related debris;
- to establish the most efficient and cost effective methods to resolve disaster debris and removal;
- to expedite debris response efforts;
- to mitigate the threat to the health, safety, and welfare of City residents;
- to coordinate partnering relationships through pre-planning and communications; and
- to implement and coordinate private sector debris removal and disposal contracts to maximize cleanup efficiency.

Scope

This Standard Operating Guideline (SOG) will be used for the planning and implementation of field operations to clear, remove, and dispose of debris caused by a major debris-generating event. This SOG shall apply to all departments of the City of Concord. The City of Concord Solid Waste Services Department is the lead agency responsible for coordinating the permanent removal, storage, recycling, and disposal of debris deposited along or immediately adjacent to public rights-of-way in consultation with other supporting City departments, agencies, and through contracted private forces.

The SOG is designed to assist Concord staff in implementing and coordinating public and private sector debris removal and disposal operations to maximize resources and assure necessary resources are readily available through advanced planning. Expeditious debris removal and disposal actions will mitigate the threat to the health, safety, and welfare of Concord's residents. By having a debris management plan in place prior to a natural disaster, the City aspires to protect the safety and well-being of our residents in an efficient and well-coordinated manner.

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The success of a debris management plan is dependent upon the commitment of the end user to research, plan, implement, and evaluate the plan effectively and efficiently. Proper planning by management and employee training will provide the City with a foundation for a quick and successful recovery. This document, by necessity, must be dynamic and fluid in nature, subject to constant review and evaluation to keep it current to changing regulatory requirements and to the changing needs of the City organization and populace.

Strategy

The City of Concord utilizes the National Incident Management System (NIMS) to coordinate emergency preparedness and incident management. This system will be used to direct, control, and coordinate debris response and recovery operations. The terms for the roles described in this document are intended to match those given in FEMA's *Debris Management Guide* (FEMA-325); however, these roles may overlap with those of an Incident Commander, Information Officer, Liaison Officer, Safety Officer, Operations Section Chief, Planning/Intelligence Section Chief, Logistics Section Chief, Finance/Administration Section Chief, etc.

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Chapter 2: Roles and Responsibilities

Debris Management Staff Organization and Structure

This section discusses the personnel necessary to plan, develop, and implement the City of Concord's debris management plan. The number and composition of individuals organized to manage debris clearance, removal, and disposal activities depends on the magnitude of the disaster and the size of the affected area. Following a major disaster, additional staff members may be required.

Successful debris operations require collaborative efforts between departments within the City's organization and specific external agencies that have regulatory authority over debris operations. It is essential that prospective debris management group members have as much training as possible and interface with other agencies responsible for debris clearance, removal, and disposal activities prior to any event.

To implement debris operations quickly, it is important for emergency response and recovery personnel to have a clear understanding of how their normal job responsibilities and functions apply to debris operations. Immediately following a disaster event, the City of Concord is responsible for establishing a disaster debris management group and developing an event-specific debris management plan.

Each department involved in the execution of this plan is responsible for specific roles. Responsibilities often overlap, making coordination and communication critical to the success of the debris management plan. In many cases, a particular department is involved in numerous plan-related activities. These overlapping responsibilities create the need for a primary coordinator or Debris Project Manager.

The City's Debris Project Manager will be the Solid Waste Services Director, since the day-to-day duties of the Solid Waste Services Department has the greatest overlap in knowledge and function to debris management. The debris management staff shall be comprised of personnel from the following departments: Solid Waste Services, Fire and Life Safety, Police, Transportation, Stormwater Services, Buildings and Grounds, Electric Systems, Water Resources, Wastewater Resources, Administration, Finance, Legal, Engineering, Development Services, and Business and Neighborhood Services. The following debris management organizational chart depicts the personnel involved in this Plan. The Debris Management Group reports to the Infrastructure Branch which operates under the Operations Section of the City's Incident Command Structure.

If individuals identified for specific functions are unavailable during response and recovery operations, the City's continuity plan should identify alternative personnel.

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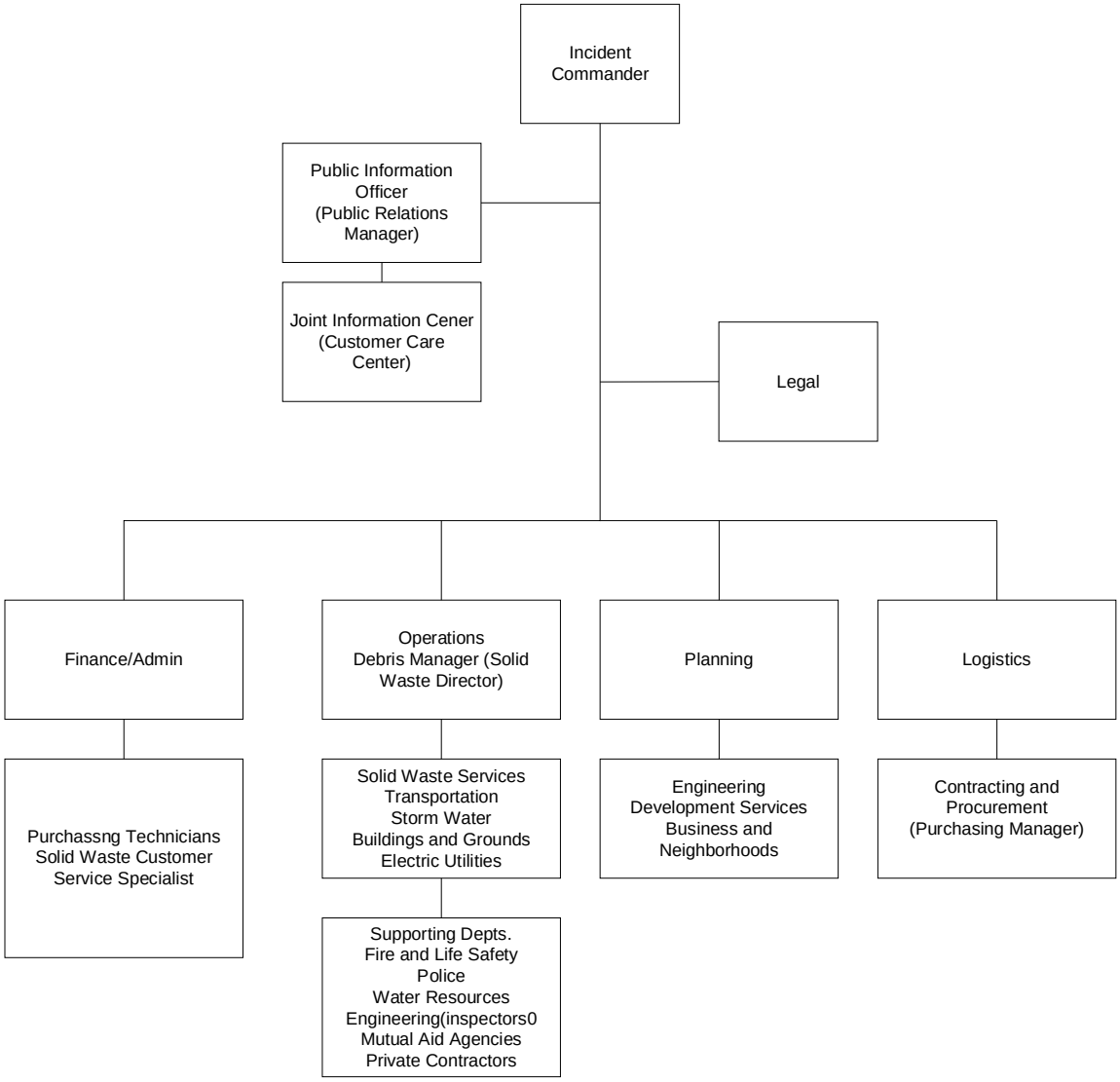

Debris Management Staff Responsibilities

The City of Concord debris management group shall be comprised of personnel representative of various City departments and collectively will be responsible for the development of the City's debris management plan with individual responsibilities to include, but not limited to, the following.

Debris Project Manager (Debris Project Supervisor). The Debris Project Manager is the primary decision maker and should understand the City's processes, procedures, personnel, resources, and limitations. The Debris Project Manager has the overall responsibility of developing and administering an event-specific debris management plan and coordinating communication and activities related to its implementation. This individual will be responsible for developing and implementing necessary training programs. Also, the Debris Project Manager will ensure that:

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- participating staff members are aware of up-to-date eligibility limitations and the division of responsibility between the City and the North Carolina Department of Transportation;
- activities are coordinated in accordance with the Incident Command System during all phases of response and recovery operations;
- necessary contracts have been executed; and
- all required permits have been obtained.

Administration. The administrative section responsibilities will include, but are not limited to: record keeping and accounting. The Administration/Finance Section will provide for the collection and compilation of all labor, equipment hours, materials, supplies, and related expenditures concerning disaster debris clearing and recovery. This Section has access to the budget of each of the departments involved with implementation of this plan and to the City's time records database. Purchasing technicians from the Finance Department will assist with the acquisition and recordkeeping of disaster-related supplies. The Solid Waste Director will assign a representative responsible for responding to customer complaints from the Joint Information Center (Call Center). This section will handle the routine office procedures and will work closely with the Public Relations section to distribute information and educate citizens about debris operations.

Contracting and Procurement. The Purchasing Manager provides staffing for the Procurement Unit of the Finance/Administration Section. This Unit will be responsible for contracting and procurement. The responsibilities will include, but are not limited to: ensuring that the City of Concord's financial and purchasing policies are followed; ensuring that bidding requirements are met; completing necessary forms; advertising for bids; providing instructions to bidders; preparing contracts using the City's standard contract templates; and routing contracts through the required approval process.

Legal. The City Attorney's Office serves as the Legal Officer with the General Staff. They will provide legal guidance and their responsibilities will include, but are not limited to: reviewing contracts prepared by the Purchasing Unit; verifying necessary easements and property rights; advising team members on limiting the City's liability; ensuring that the statutory procedures for the condemnation of buildings are followed; and creating and recording documents for the acquisition of land for temporary collection centers and debris management sites.

Operations. The Operations Section will provide for the management of all operations directly applicable to the City's primary mission. The Debris Management Group is supervised by the Debris Project Manager (Debris Management Supervisor) under the direction of the Infrastructure Branch under the Operations Section Chief and is responsible for the implementation of the Debris Management portion of the Incident Action Plan.

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The Debris Management Group consists of Teams/Task Forces and single resources responsible for coordination with other levels of the Incident Command System, which may include:

- Positioning equipment and resources for the response and recovery debris removal operations.
- Developing staff schedules and strategies.
- Providing communication, facilities, services, equipment, and materials to support the response and recovery activities.
- Monitoring and directing force account and contract labor.
- Distributing response and recovery resources.
- Operating and managing the collection, debris management site, and disposal strategies.
- Creating a demolition strategy for structures, if necessary.
- Reporting and updating progress for distribution to the debris management group.

Following most disasters, the debris clearing operations will be carried out by the Solid Waste Services, Transportation, Stormwater Services, Buildings and Grounds, Electric Systems, Fire and Life Safety, Water Resources, Wastewater Resources, Engineering (Inspection), and Fleet Services Departments, in addition to other available resources and private contractors. Police personnel will help assess the extent of the damage by conducting windshield surveys.

Solid Waste Services Department. The Solid Waste Services responsibilities will include, but are not limited to:

- Coordinating all debris management assignments, including the removal, storage, burning or grinding, and disposal of debris, as directed by the Incident Commander.
- Providing specialized equipment and trained operators to assist in the clearing and removal of debris.
- Informing the Debris Project Manager of cleanup progress and any problems encountered or expected.
- Coordinating all solid waste assignments approved by the Debris Project Manager.
- Maintaining a listing of all available Solid Waste Services equipment and staff identified for possible debris removal and disposal missions.
- Ensuring that required logistical support is available, including cell phones, transportation, etc.
- Forwarding reports of labor, equipment hours, materials, supplies to the administrative section.

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Transportation Department. The Transportation Department responsibilities will include, but are not limited to:

- Performing response operation roadway debris management assignments in cooperation with the Debris Project Manager in accordance with the Incident Command System.
- Providing specialized equipment and trained operators to assist in the clearing and removal of woody vegetation along critical rights-of-way.
- Ensuring that debris removal from municipal streets is coordinated and approved by the Debris Project Manager.
- Informing the Debris Project Manager of cleanup progress and any problems encountered or expected.
- Maintaining a listing of all available Transportation equipment and staff identified for possible debris clearing, removal, and disposal missions.
- Coordinating all Transportation assignments approved by the Debris Project Manager.
- Ensuring that required logistical support is available, including cell phones, transportation, etc.
- Forwarding reports of labor, equipment hours, materials, supplies to the administrative section.

Stormwater Services Department. The Stormwater Services Department responsibilities will include, but are not limited to:

- Managing all stream and culvert debris management assignments.
- Providing personnel and equipment to clear, remove, and dispose of debris as directed by the Debris Project Manager or Incident Commander.
- Ensuring that debris removal from streams and culverts is coordinated and approved by the Debris Project Manager.
- Informing the Debris Project Manager of cleanup progress and any problems encountered or expected.
- Maintaining a listing of all available Stormwater Services equipment and staff identified for possible debris removal and disposal missions.
- Ensuring that required logistical support is available, including cell phones, transportation, etc.
- Forwarding reports of labor, equipment hours, materials, supplies to the administrative section.

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Buildings and Grounds Department. The Buildings and Grounds Department responsibilities will include, but are not limited to:

- Managing all municipal park debris management assignments.
- Providing personnel and equipment to clear, remove, and dispose of debris as directed by the Debris Project Manager or Incident Commander.
- Ensuring that debris removal from park and recreational facilities is coordinated and approved by the Debris Project Manager.
- Informing the Debris Project Manager of cleanup progress and any problems encountered or expected.
- Coordinating with the Debris Project Manager for the storage, burning, and disposal of debris at debris collection/management sites located on municipal parks.
- Maintaining a listing of all available Building and Grounds equipment and staff identified for possible debris removal and disposal missions.
- Ensuring that required logistical support is available, including cell phones, transportation, etc.
- Forwarding reports of labor, equipment hours, materials, supplies to the administrative section.

Electric Systems Department. The Electric Systems Department responsibilities will include, but are not limited to, the following:

- Maintaining a listing of all available Electric Systems equipment and staff identified for possible debris clearing and disposal missions.
- Coordinating all electric and overhead utility debris assignments approved by the Debris Project Manager in accordance with the Incident Command System.
- Ensuring that required logistical support is available, including cell phones, transportation, etc.
- Ensuring that the Debris Project Manager is kept informed of cleanup progress and any problems encountered or expected.
- Forwarding reports of labor, equipment hours, materials, supplies to the administrative section.

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Planning Section. The planning section supports all other debris management sections in a technical capacity. Concord's Engineering, Development Services, and Business and Neighborhood Services Departments will fulfill this responsibility. This section will assist with event planning and provide debris quantity assumptions, economic analysis, and feasible solutions for the debris operations. The following are tasks that may be completed by the engineering/planning staff:

- Forecasting debris volume based on assumed disaster type.
- Strategizing and mapping debris haul routes.
- Selecting debris management sites and designing the site layout.
- Determining reduction and recycling means and methods.
- Developing the debris collection strategy.
- Establishing a process for building damage assessment and condemnation (including public and private properties).
- Issuing permits.
- Serving as a debris management liaison at the City's Emergency Operations Center.

Safety Officer. The Safety Officer's responsibilities include the following with respect to all debris management activities:

- Communicating timely information to the City of Concord debris management group and Emergency Operations Center (EOC) staff regarding the safety status of the debris clearing, removal, and disposal operations.
- Reviewing contracts related to debris removal to verify that safety-related expectations are documented and adequate insurance coverage is provided.
- Assessing and reporting the status of the debris removal operations in regard to regulations: 29 CFR 1910.1200 (HazCom), 29 CFR 1910.120 (Hazwoper), 29 CFR 1910.134 (Respiratory Protection), 29 CFR 1910.146 (Confined Spaces), 29 CFR 1910.1030 (BBP), and 29 CFR 1926.20-35 (General Construction).
- Coordinating with the Debris Project Manager to ensure that appropriate Responder Safety Training is provided.
- Coordinating with the Debris Project Manager to ensure that measures for assuring personnel safety are in place, and to monitor and/or anticipate hazardous and unsafe situations.
- Coordinating with the Debris Project Manager to ensure that a site-specific Safety and Health Plan and published Site Safety Plan Summary are prepared.
- Convening safety coordination meetings.
- Providing safety-related information to the Public Relations section as requested by the Debris Project Manager.

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Public Information Officer. The Public Information Officer's responsibilities will include, but are not limited to: coordinating press releases; contacting local organizations, individuals, and media outlets; and creating public notices. The Public Relations Manager will develop a proactive information management plan that emphasizes actions the public can take to expedite the clean-up process.

Flyers, newspapers, radio, and TV public service announcements will be used to encourage public cooperation for such activities as:

- Separating burnable and non-burnable debris;
- Segregating Household Hazardous Waste (HHW);
- Placing disaster debris at the curbside;
- Keeping debris piles away from fire hydrants and valves;
- Reporting locations of illegal dump sites or incidents of illegal dumping;
- Segregating recyclable materials; and
- Disseminating debris route clearing and pickup schedules through the local news media and City of Concord web postings.

Organization and Operations Concepts

When advance warning is provided for an impending debris-generating event, the City will take necessary actions to prepare staff and equipment. The City's Emergency Operations Center (EOC), which is located at Fire Station 3, will be activated in accordance with the City's standard policies and procedures. Liaisons for debris management operations will occupy the EOC and typically serve in 12-hour shifts; however, the Alfred M. Brown Operations Center will serve as the control center for debris management activities. The City's 24-hour customer care call center, also located at Fire Station 3, will become the City's Joint Information Center (JIC). The JIC phone number (704-920-5555) will be used to forward calls to the EOC and key personnel at the debris management control center.

The Debris Project Manager will work in conjunction with designated municipal departments, support agencies, utility companies, waste management firms, and trucking companies to facilitate the debris clearance, collection, reduction, and disposal needs following a disaster. The City of Concord Solid Waste, Transportation, Stormwater Services, Buildings and Grounds, and Electric Systems Departments will share the responsibility for debris clearing during the response phase. Resources from other municipal departments will support this effort as needed. Police will assist with windshield surveys to estimate the extent of the damage. The Transportation Department will lead the initial removal of debris from public rights-of-way. Only when pre-approved by the City's Legal staff and it is deemed in the public interest will the City enter and remove debris from private property. Equipment will be placed in strategic locations, if necessary, to protect the equipment from damage, preserve the City's

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flexibility for employment of the equipment, and allow the commencement of work immediately following the disaster. Temporary debris management sites will be utilized as necessary and will be monitored by construction inspectors from the Engineering Department.

In a major or catastrophic disaster, the City of Concord may have difficulty locating staff, equipment, and funds to devote to debris removal, in the short term, as well as the long term. These events may exceed the City's capabilities for debris removal and disposal. Because of the limited quantity of resources and other service commitments following the disaster, the City may activate mutual aide agreements and/or rely heavily on private contractors for debris removal, collection, reduction, and disposal. The City may require assistance with some or all of these activities. Using private contractors instead of City employees for debris removal may allow government personnel to devote more time to their regularly assigned duties and provide continuity of essential services to the community. Private contracting may also stimulate local, regional, and state economies impacted by the storm, and maximize the State and local governments' level of financial assistance from the federal government. The debris management group will develop and maintain a list of approved contractors who have the capability to provide debris removal, collection, and disposal in a cost effective, expeditious, and environmentally sound manner following a disaster.

It is assumed that the Mayor of the City of Concord will declare a local state of emergency and request state and/or federal assistance. The Cabarrus County Commissioners may declare a state of emergency and request a state level declaration. The Governor of North Carolina may then declare a state of emergency that authorizes state resources. If the disaster exceeds both local and state resources, the Governor will request a presidential disaster declaration allowing the President of the United States to authorize federal resources to assist the City.

Emergency Communications Strategy

Once an event is imminent and prior to the initiation of response operations, the Debris Project Manager will ensure that Operations staff members are aware of FEMA eligibility requirements and contract conditions between the City and NC DOT. The Public Information Officer (PIO) will collect relevant public information notices and distribute necessary warnings through various media outlets.

Once activated, the City Emergency Operations Center (EOC) and Joint Information Center, with the support of the City's Communications Department and contract Information Technology firm, will maintain several modes of communication and redundant/backup systems (i.e., VHF, UHF, 800MHz); cellular telephone communication systems; and a landline telephone system.

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The Police Department will provide an initial assessment of damage to the Incident Commander, specifying the areas affected and general quantities and types of debris. Needed crews will be contacted via telephone or radio and provided assignments. Progress will be reported up the designated chain of command and regular updates will be forwarded by specified individuals to the EOC. The EOC will keep the PIO informed of the road closure status. This information, along with estimated collection schedules and educational materials will be distributed by the PIO to the public.

Health and Safety Strategy and Procedures

The City strives to comply with all federal, state, and local requirements to maintain and ensure the highest quality of health and safety standards for its employees and residents. Personnel will be required to undergo basic safety training, to include, but not limited to, first aid, job site safety, and use of safety equipment. Volunteer personnel will also be trained. The City of Concord emergency plan anticipates Personal Protective Equipment (PPE) needs; provides the required PPE; and verifies that training is completed on the use, maintenance, and limitations of PPE.

Information will be disseminated to the public regarding basic health and safety issues as necessary. This information may include notices on how and when to boil water prior to consumption, instructions for the proper disposal of dead animals, and tips on reducing hazards associated with handling and disposing of building and chemical debris.

The City of Concord is dedicated to discovering, correcting, and preventing safety and environmental health hazards that could affect employees and the general public, and encourages employee initiative and involvement in promoting safe and healthful operations. Debris management hazards and issues are dynamic and require vigilance and flexibility. The key to a safe response is attention to the safety issues related to the surrounding environment. The physical hazards are similar to any construction or demolition site. Health hazards include dangers associated with the surrounding environment. Potential hazards that may be faced include:

- dangerous driving conditions
- unstable work surfaces
- unstable structures
- confined spaces
- falls from heights
- downed electrical lines
- proximity to traffic
- proximity to moving parts on heavy equipment
- carbon monoxide
- smoke inhalation
- dust and particulate inhalation
- falling ice and debris
- flying debris
- chemical exposure
- mold exposure
- blood-borne disease exposure
- bites and stings
- excessive noise
- lack of safe water and food

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- lack of personal sanitation and hygiene products
- traumatic stress

Training Requirements

The Debris Project Manager, with the assistance of the Emergency Management Coordinator and the Safety Officer, will develop and coordinate all training programs associated with the implementation of the debris management plan. Training shall include, but is not limited to:

- determination of FEMA reimbursement eligible debris-related work,
- incident command system,
- debris clearing priorities (snow and ice abatement routes),
- estimating and reporting preliminary debris quantities,
- required environmental monitoring at temporary debris management sites,
- proper use of chain saws,
- hazardous stump extraction and removal eligibility,
- mechanically-loaded versus hand-loaded trucks and trailers,
- load ticket requirements,
- proper tracking of costs associated with debris management,
- temporary debris management site buffer requirements,
- debris management site monitoring responsibilities,
- air curtain burning procedures,
- proper handling of white goods,
- proper handling of chemicals and household hazardous waste, and
- proper use, maintenance, and limitations of personal protective equipment.

A web page dedicated to debris management on the City's intranet, which shall serve as an internal resource, should include:

- the approved debris management plan,
- all applicable training materials,
- a list of City equipment resources,
- a list of City employees along with equipment they are qualified to operate and tasks they are qualified to perform,
- links to related resources, policies, and guidance documents,
- template contracts for debris management services,
- executed contracts for debris management services,
- site plans for permitted temporary debris management sites, and
- bare pavement route lists and maps, as defined in the Snow and Ice Abatement Plan.

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Workshops and Training Sessions

Conducting workshops and training on disaster debris management is a key component toward a coordinated approach to response and recovery after a disaster. The workshops would be targeted to emergency managers, City staff, municipal officials, and other parties who are responsible for emergency management, solid waste management and disaster debris planning. Training sessions could also be conducted for area contract haulers, demolition contractors, or volunteers who could assist the City and the region in implementing this debris management plan.

Preparation Workshops. To facilitate inter-jurisdictional coordination during a disaster response, a workshop (or series of workshops) could be conducted for local solid waste management coordinators, public works officials, and other interested parties (e.g. haulers, solid waste facility operators). The purpose would be to present the City's objectives for diverting disaster debris and to allow local officials and others to share ideas and approaches. A key objective would be for the various entities to understand the basic elements of the debris management plan. For example, are curbside collection programs anticipated, or will drop-off sites be established? Will source separation be required, or will mixed loads be collected? What materials will be targeted for diversion?

Volunteer Training. It is well documented that the use of trained volunteers in the event of an emergency or disaster greatly enhances the effectiveness of emergency response personnel. The Federal Emergency Management Agency began promoting the nationwide creation of the Community Emergency Response Team (CERT) concept in 1994. Since then, CERTs have been established in hundreds of communities. CERT training promotes a partnering effort between emergency services and the people that they serve. The goal is for emergency personnel to train members of neighborhoods, community organizations, or workplaces in basic emergency response skills. CERT members are then integrated into the emergency response capability of their area. The City of Concord has a very active CERT and some of these volunteers could be extremely helpful in assisting with the implementation of this plan. Some work assignments would require pre-disaster training, while others would not. The areas where volunteers could be utilized are:

- Distributing Doorhangers and Flyers. After a disaster, the normal means of communication (e.g. television, newspapers, radio, and telephone) can be compromised making it difficult to spread the word about diversion programs. Door hangers can be an effective means of distributing the necessary information. Volunteers with very minimal training can be used to distribute these materials door-to-door.
- Ensuring Segregation of Debris. Minimizing contamination of source separated disaster debris is a common challenge. Utilizing trained inspectors to preview debris loads before they are collected helps reduce contamination problems. It may be appropriate for trained volunteers to provide this service. Another

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training opportunity would be to provide pre-disaster training to contractors and haulers who will be involved in the diversion program. By providing up-front training, there is a better likelihood that diversion programs will be implemented properly and maximum diversion rates will be achieved.

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Chapter 3: Debris Forecasting for a Design Event

Forecasting

"Estimating" is the process of quantifying the amount of debris after a disaster. "Forecasting" is predicting the amount and type of debris prior to a disaster. Forecasting the type and quantity of debris begins the debris planning process. By forecasting the type and quantity of debris, the scope of work for the debris management operations can be better defined. Debris forecasts can be used to determine the required response and recovery resources, the number and size of storage and reduction sites, and the final disposition of the disaster-related debris.

Debris can be reasonably forecasted by becoming familiar with the impacts that result from various types of disasters. Realistic debris forecasts depend on the type and size of disaster anticipated. Natural and man-made disasters precipitate a variety of debris that includes, but is not limited to, such things as trees, sand, gravel, building/construction materials, vehicles, personal property, etc. Many natural disasters will require the removal of debris from both land and water.

The quantity and type of debris generated from any particular disaster is a function of the location and type of event experienced, as well as its magnitude, duration, and intensity. The quantity and type of debris generated, its location, and the size of the area over which it is dispersed directly impacts the type of collection and disposal methods used to address the debris problem, associated costs incurred, and the speed with which the problem can be addressed.

Predicting Types of Debris

By Disaster Type. General descriptions of natural and manmade disasters, which Concord could experience, and their associated debris streams are provided below.

Hurricanes. The damaging forces of hurricanes and tropical storms include high velocity winds (up to 150 miles per hour or higher in gusts), storm surge, and wave action. The most severe damage frequently occurs in the shore lands adjacent to the ocean. The resultant debris consists primarily of vegetative matter, construction materials from damaged or destroyed structures, personal property, marine vessels, and sediment. The greatest concentration of debris is located along the shoreline. Flooding and tornadoes spawned by hurricanes can cause damage and leave extensive amounts of natural and manmade debris far inland.

It is important to consider the mix of debris that may be generated, though there is no standard composition data that can be applied for all hurricanes. For example, the

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composition of debris from Hurricane Andrew (1992) in Florida was generally 30 percent clean, woody debris and 70 percent construction and demolition debris. After Hurricane Fran (1996) in North Carolina, the mix was exactly the opposite. Considering the land-use types and existing infrastructure (types of structures) will assist with forecasting for planning purposes.

Tornadoes. Damage from tornadoes is caused by high-velocity rotating winds. The severity of the damage depends on the velocity of the tornado funnel and the length of time the funnel is on the ground. Damage is generally confined to a narrow path, which can be up to one-half mile wide and from 100 yards to several miles long. Tornado debris consists primarily of vegetative debris, construction materials from damaged or destroyed structures, and personal property.

Floods. Severe rainstorms, hurricanes, or reservoir failure can cause flooding. Damage to structures from flooding is caused either by inundation or high-velocity water flow. Structural damage is usually limited to the floodway and the floodplain area immediately adjacent to the waterway. Heavy structural damage may result from high-velocity waters in mountainous areas or the failure of a flood control project, such as a dam or levee. Flood debris may consist of sediment, wreckage, personal property, and sometimes hazardous materials deposited on public and private property. Additionally, heavy rains and floods may produce landslides; in such cases, debris consists primarily of soil, gravel, rock, and some construction materials.

Earthquakes. Seismic forces along fault lines generate shock waves that cause ground shaking, surface ruptures, liquefaction, landslides, mudflows, and earth cracking. Damage may be localized at the epicenter or widespread across adjoining areas. Secondary effects of earthquakes such as aftershocks, fires, explosions, and landslides cause further damage. Debris from an earthquake generally consists of damaged personal property, structural building materials, charred material, concrete, and asphalt.

Fires. Wildfires or urban fires can destroy or partially damage building structures, vehicles, public infrastructure, and vegetation. The loss of vegetative growth on hillsides may result in mudslides and subsequently cause further structural damage. Debris from fires consists of burnt personal property, burnt metals, charred wood, ash, asbestos, and other hazardous wastes.

Ice Storms or Snowstorms. Debris from ice storms or snowstorms consists of significant amounts of vegetative debris and overhead utility service components.

Acts of Terrorism. Terrorism includes the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives. Since terrorism is regarded as a criminal act, it involves coordination with law enforcement authorities, the coroner's office, and health officials before debris is handled or disposed.

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Debris generated as a result of an act of terrorism is highly variable in both quantity and type, depending upon the specific means utilized by the terrorists. An act of terrorism could generate little to no debris at all, or could result in large quantities of multiple types of debris, potentially requiring highly specialized personnel, procedures, and equipment for its removal and disposal.

By Land Use and Geography. Debris composition will be effected by land use, terrain, and geographical location. Understanding the types of debris that will be generated provides insight as to the type of handling necessary to safely manage the debris. For example, rural areas may have more vegetative debris; whereas, urban residential areas may have more construction and demolition debris. Industrial parks may have special environmental concerns compared to recreational park areas.

Predicting Volume of Debris

After the disaster parameters and geographic extent is established, specific debris volumes can be quantified by using historical information or forecasting models. Historical records provide a basis for forecasting disaster-generated debris and can be used for planning purposes. Previous contracts for debris removal, recycling activities, volume-reduction processing, and landfill disposal records should be reviewed thoroughly to determine the quantity of disaster debris that was generated for a particular disaster event.

If previous disaster data is not available, assumptions may be made from neighboring jurisdictions' experience, or from U.S. Army Corps of Engineers (USACE) modeling. USACE emergency management staff has developed a modeling methodology designed to forecast potential amounts of hurricane-generated debris. Based on data from Hurricanes Frederic (1979), Hugo (1989), and Andrew (1992), the methodology has a predicted accuracy of plus or minus 30 percent. USACE mathematical modeling forecasts the quantity of debris specifically generated by hurricanes and is available in *USACE Hurricane Debris Estimating Model*.

Buildings. Several basic techniques have been established to forecast destroyed building debris quantities. These techniques can be used to forecast debris quantities prior to an event or estimate quantities after a disaster.

Residential Buildings. A formula for forecasting and estimating the debris quantities from a demolished single-family home and its associated debris is:

L' x W' x S x 0.20 x VCM =___ cubic yards of debris (cy), where:

- L = length of building in feet
- W = width of building in feet
- S = height of building expressed in stories
- VCM = Vegetative Cover Multiplier

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The vegetative cover multiplier (VCM) is a measure of the amount of debris within a subdivision or neighborhood. The descriptions and multipliers are described as:

- **Light** (1.1 multiplier) vegetative cover includes new home developments where more ground is visible than trees. These areas will have sparse canopy cover.
- **Medium** (1.3 multiplier) vegetative cover generally has a uniform pattern of open space and tree canopy cover. This is the most common description for vegetative cover.
- **Heavy** (1.5 multiplier) vegetative cover is found in mature neighborhoods and woodlots where the ground or houses cannot be seen due to the tree canopy cover.

The amount of personal property within an average flooded single-family home has been found to be:

- 25-30 cy for homes without a basement
- 45-50 cy for homes with a basement

Mobile homes have less wasted space due to their construction and use. The walls are narrower, and the units contain more storage space. Therefore, the typical mobile home generates more debris by volume than a single-family home. Historically, the volume of debris from mobile homes has been found to be:

- 290 cy of debris for a single-wide mobile home
- 415 cy of debris for a double-wide mobile home

Outbuildings. All other building volumes may be calculated by using the following formula:

L' x W' x H' x 0.33 x 27 = ___ cubic yards of debris, where:

- L = length of building in feet
- W = width of building in feet
- H = height of building expressed in feet
- 0.33 = a constant to account for the "air space" in the building
- 27 = the conversion factor from cubic feet to cubic yards

Vegetation. Vegetation is the most difficult to estimate due to the random sizes and shapes of trees and shrubbery. Based on historical events, USACE has established a few rules of thumb in forecasting and estimating vegetative debris.

- Treat debris piles as a cube, not a cone, when estimating.
- Fifteen trees, 8 inches in diameter, yields approximately 40 cy.
- One acre of debris, 3.33 yards high equals 16,117 cy.

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Volume – Weight Conversion Factors. These factors to convert woody debris from cubic yards to tons are considered reasonable and were developed by USACE.

- Softwoods 6 cubic yards = 1 ton
- Hardwoods 4 cubic yards = 1 ton
- Mixed debris 4 cubic yards = 1 ton
- C&D 2 cubic yards = 1 ton

To verify these conversion factors in the field, several truckloads may be tested. Trucks should be well loaded, contain woody debris typical of that being removed, and truck capacities should be verified. It is recommended that testing be performed with all affected parties present.

Remote Sensing. The use of remote sensing information (aerial photographs, satellite data, etc.), either alone or in combination with field surveys, may be of significant use in forecasting the amount, mix, and extent of debris. Geographic Information System (GIS) maps should be considered early in the planning process. Depending upon the area, it is usually possible to quickly obtain GIS maps of landfills, Superfund sites, transportation routes, etc. As data on debris is obtained, plotting it on GIS maps should be considered.

Design Disaster Event – Category 1 Hurricane affecting the Entire City

Concord was affected in 1989 by Hurricane Hugo, which was a storm that made landfall in South Carolina as a Category 4 hurricane. By the time this storm reached the Charlotte metro area, it had sustained winds of 69 mph and gusts of 87-100 mph, which is equivalent to a Category 1 hurricane. The local community has also experienced F0 (40-72 mph) and F1 tornadoes (73-112 mph), as well as various ice storms. Concord's design disaster event, would be a repeat of Hurricane Hugo, which affected the entire City. Calculations for Concord's design disaster event are based on the *USACE Hurricane Debris Estimating Model*.

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Predicted Debris Quantity. The formula for predicting debris quantity is:

Q=H(C)(V)(B)(S), where:

H	Households	=	Population/3 (3 persons per household)
C	Category of Storm	=	Factor (See Table 1 below)
V	Vegetation Multiplier	=	Factor (See Table 2 below)
B	Commercial Density Multiplier	=	Factor (See Table 3 below)
S	Precipitation Multiplier	=	Factor (See Table 4 below)

Table 1: Storm Category

Hurricane Category	Value of "C" Factor
1	2 CY
2	8 CY
3	26 CY
4	50 CY
5	80 CY

Table 2: Vegetative Cover

Vegetative Cover	Value of "V" Multiplier
Light	1.1
Medium	1.3
Heavy	1.5

Table 3: Commercial Density

Commercial Density	Value of "B" Multiplier
Light	1.0
Medium	1.2
Heavy	1.3

Table 4: Precipitation

Precipitation	Value of "S" Multiplier
None to Light	1.0
Medium to Heavy	1.3

Using this formula, the predicted debris from any hurricane or tornado will be within 30% plus or minus of the actual amount of debris accumulated. The assumption of 3 persons per household (H) is used for the Concord model. The current population estimate for Concord is 79,673, based on the certified estimate from the State Demographer's Office in the NC Office of the State Budget and Management; therefore, H = 79,673 ÷ 3. A Category 1 hurricane has been selected as the design storm; therefore C = 2. In Concord, aerial photography reveals a uniform pattern of open space and tree canopy, or medium vegetative cover; therefore V = 1.3. Concord is predominantly residential. However, commercial areas exist downtown and along key transportation corridors, such as Interstate 85, U.S. Highway 29, and Branchview Drive (N.C. Highway 3); therefore, commercial density is medium and B = 1.2. The total precipitation in Concord from Hurricane Hugo was about 3 to 4 inches. However, hurricanes in North Carolina can be accompanied with significant rainfall. In 1999, Hurricane Floyd, whose eye tracked along the coast, dumped up to 19 inches of rain on some communities in the coastal region of North Carolina. Communities on the eastern edge of the piedmont received around 9 inches of rain and Concord received 1 to 2 inches. Storms associated with Category 1 hurricanes can commonly be

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accompanied with heavy rainfall; therefore, S = 1.3. Using these figures, the predicted debris quantity (Q) for the design disaster event is:

Q = (H)(C)(V)(B)(S)

Q = 26,558 x 2 x 1.3 x 1.2 x 1.3

Q = 107,718 cy of debris

Predicted Debris Management Site Area Needed. Once the amount of debris has been estimated, the City of Concord will require temporary storage sites, the size of which can be determined by taking the following factors into consideration:

1. Debris piles shall be no deeper (higher) than 10 feet.
2. Temporary storage sites will require 60% of the land area for roads, safety buffers, burn pits, household hazardous waste, etc.
3. Ten feet equals 3.33 yards (yd).
4. One acre (ac) equals 4,840 square yards (sy).
5. Total debris volume per acre equals 4,840 sy/ac x 3.33 yd = 16,117 cubic yards (cy) per acre.

For the design disaster event above, the required acreage (excluding roads, safety buffers, etc.) is:

Debris Area = 107,718 cy debris ÷ 16,117 cy maximum storage/acre = 6.68 acres debris

The total debris management site area would need to be about 60% greater to account for roads, safety buffers, etc. (unusable storage); therefore,

Unusable Storage = 60% debris management site area

Debris Area = 40% debris management site area

Debris Management Site Area = debris area ÷ 40%

= 6.68 acres ÷ 0.40

= 16.7 acres debris management site area

= 16.7 acres ÷ 640 acres/sm = 0.026 square miles

If you assume a 100-acre storage site can be cleared every 45 to 60 days or once during the recovery period, only one 16.7-acre site would be required. However, the number of sites is dependent on the acreage of the property for which the City has property rights, the distance to the debris source, and the speed at which debris is removed for recycling or permanent disposal.

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Predicted Debris Volume by Type. To facilitate the debris management process, debris will be segregated by type. Concord's preferred strategy for debris handling will be: resource recovery, chipping and grinding, burning, then landfilling, as a last resort. Debris will consist of two broad categories: clean wood debris, and construction and demolition (C&D) debris. Assuming that debris components will more closely resemble Hurricane Fran than Hurricane Andrew, approximately 70% will be clean woody material and 30% will be C&D material. C&D debris must be sorted. Approximately 42% will be burnable, 5% will be soil, 15% will be metals, and 38% will require landfill disposal.

Therefore, the design disaster event will create approximately:

- 75,403 cy of clean wood debris; and
- 32,315 cy of construction and demolition debris, which will be comprised of:
    - 13,572 cy of burnable material,
    - 1,616 cy of reusable soil material,
    - 4,847 cy of recyclable metal material, and
    - 12,280 cy of material to be land filled.

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Chapter 4: Debris Clearing and Collection Strategy

Clearing and collection operations are normally broken into two phases: response and recovery. This chapter includes activities for response and recovery debris strategies. Response occurs sometimes during and always immediately after an event in order to clear emergency access routes. The recovery operation usually begins after the emergency access routes are cleared and the residents return to their homes and begin to bring debris to the public rights-of-way.

To develop a strategy, staff must consider several variables, which include:

- amount and type of forecasted debris,
- employee labor resources,
- available equipment,
- urgency of the debris operations,
- damage to priority infrastructure, and
- limitations of forces and skills for specialized debris issues.

Response Operations

Debris-related activities during the response operations include immediate actions for the removal of debris to facilitate search and rescue efforts, to allow access to critical facilities, and to prevent flooding. Actions required during this phase are usually completed within a matter of days following a disaster event. To ensure coordination between debris management and emergency services, the City's Emergency Management Coordinator will serve as the Operations Section Chief during the response operations. Detailed crew assignments will be generated by the City's Transportation Director (Branch Director).

The City will use its own labor force and equipment to move debris during this phase. In circumstances when the existing labor force is not sufficient, or when specialized services are required, Concord may supplement their work efforts by activating mutual aid agreements or by awarding short-term debris removal contracts for specific work. It will be essential to coordinate work to ensure that safety issues are addressed with regards to energized power lines and gas lines.

Priorities.

First Priorities. Prior to and immediately following the event, extricating people and providing access to health care facilities are the top priorities; therefore, the clearing of major arterial routes is prioritized to facilitate the movement of emergency services staff such as police, fire, and ambulance service. The City's Transportation Department will coordinate this effort under the Emergency Management Coordinator's direction. Key

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roads in the City of Concord are prioritized and identified for debris removal based on traffic volume. Bare pavement routes identified in the City's Snow and Ice Abatement Schedule will be cleared first. Debris removal during this stage will involve the shifting of debris from the roadway to the shoulders of the road, as close to the roadway as possible to facilitate the collection of the debris at a later time. Also, to minimize or avoid flooding, the placement of the debris should not block stormwater grates or inhibit drainage from the road surface. No attempt will be made to physically remove or dispose of the debris, only to clear key access routes to expedite the movement of emergency vehicles and law enforcement. For emergency services personnel assisting with this plan (such as Fire and Life Safety Department staff), responses to emergency (911) calls will take priority over road clearing and debris removal. First priority facilities in Concord are:

1. Carolinas Medical Center-NorthEast
2. Concord Fire Stations and Cabarrus County Emergency Medical Services (EMS) Stations (Station 3 also serves as the Emergency Operations Center.)
3. Concord Police Headquarters
4. Cabarrus County Sheriff's Office
5. Alfred M. Brown Operations Center (Debris Management Control Center)

Second Priorities. Emergency operations infrastructure, such as supply distribution centers, are the next priority. Second priority facilities in Concord are:

6. Municipal Building, Municipal Annex, Cabarrus County Governmental Center, and other essential government facilities

Third Priorities. Other infrastructure facilities, such as water, wastewater, and electric utilities, are the third priority. Additionally, debris at public facilities outside of the public right-of-way that poses a danger to the public should be addressed, including, but not limited to, the repair, demolition, or barricading of heavily damaged and structurally unstable buildings, systems, or facilities. Concord's third priority facilities are:

7. Water treatment facilities (Hillgrove Water Treatment Plant, Coddle Creek Water Treatment Plant, booster pump stations, and elevated storage tanks)
8. Schools used as emergency shelters (typically area high schools, dependent on affected area(s))
9. Nursing homes and special physical/mental needs facilities

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10. Wastewater treatment facilities (Rocky River Regional Wastewater Treatment Plant, Muddy Creek Wastewater Treatment Plant, and pump stations)
11. Concord Regional Airport

Other Priorities. Priorities for all other routes are established based on each particular situation. Only after the first, second, and third priorities are addressed will economic, industrial, business, and residential access be considered. After the public rights-of-way are clear, the City will transition to the recovery operations.

Resources. Requests for additional assistance and resources should be made to the State Emergency Operations Center (EOC) through the Cabarrus County EOC. Requests for Federal assistance will be requested through the State Coordinating Officer (SCO) to the FEMA Federal Coordinating Officer (FCO). The USDA Forest Service and other state and federal land management agencies are equipped for fast responses to tornadoes and hurricanes. Additional resources may also be available through existing mutual aide agreements such as the North Carolina Mutual Aid Agreement and Electri-Cities Agreement.

Recovery Operations

The recovery phase focuses on collecting debris, reducing or recycling, and final disposal. Development and management of a debris management site is considered a recovery activity as well. Depending on the quantity and the complexity of the debris removal actions, debris removal activities could continue for several months. The City may use a combination of force account and contractor services for debris removal activities during this phase. The use of contract services will likely be based on the anticipated recovery time. During the recovery phase, the City will begin to collect, store, reduce, and dispose of debris generated from the event in a cost-effective and environmentally responsible manner. The City's Debris Project Manager will serve as the Operations Section Chief during the recovery operations.

Special crews equipped with chain saws may be required to cut up downed trees. This activity is hazardous, and common sense safety considerations are necessary to reduce the chance of injury and possible loss of life. When live electric lines are involved, work crews will coordinate with the Electric Systems Department to have power lines de-energized for safety reasons. The Electric Systems Department will be responsible for contacting Duke Power for any issues associated with their facilities. Front-end loaders and dozers will be equipped with protective cabs. Driveway cutouts, fire hydrants, valves, and stormwater inlets will be left unobstructed. All personnel will wear protective gear, such as hard hats, gloves, goggles, and safety shoes.

Collection Responsibility. The City of Concord contracts with Republic Services, Inc., formerly BFI, (contract term: November 24, 2008 to June 30, 2011) for the collection of

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residential garbage, designated non-residential customers served by roll-out carts, and a limited quantity of bulky waste. City forces collect yard waste. Roadside debris collection during response operations will be the responsibility of the N.C. Department of Transportation (NC DOT) and the City of Concord for public roads. Unless the City has executed a Memorandum of Agreement with NC DOT regarding the collection of debris, the City will not be reimbursed for the collection and disposal of any debris along primary and secondary routes in the State's highway system. The following roads are part of the State's highway system:

Akins Drive (SR 2902)

Armentrout Drive (SR 2823)

Bedlington Drive, NW

Branchview Drive

Briarcrest Drive (SR 2925)

Bruton Smith Boulevard

Cabarrus Avenue

Carolina Lily Lane

Caselton Court (SR 2932)

Centergrove Road

Central Cabarrus Drive, SW

Central Heights Drive

Christenbury Parkway (SR 1447)

Christenbury Road (SR 1447)

Church Street

Clarke Creek Parkway (SR 2930)

Cochran Road

Colfax Drive

Commerce Drive (SR 2841)

Concord Farms Road

Concord Lake Road

Concord Mills Boulevard

Concord Parkway

Corban Avenue

Cox Mill Road

Crestfield Court (SR 2933)

Crestmont Drive

Dale Earnhardt Boulevard

Dartmouth Court (SR 2927)

Davidson Drive, NW

Davidson Highway

Derita Road

Dunblane Court, NW

Ellenwood Road

Garden Terrace

George W. Liles Parkway

Goodman Road

Haddington Drive (SR 2931)

Harris Road

Hedgemore Court

Heglar Road

Hess Road

International Drive

Ivey Cline Road

J.W. Cline Road

Kirkmont Drive

Kiser Woods Drive

Lake Concord Road, NE

Marlboro Drive

Millstream Ridge Drive

Montrose Drive, NW

Morehead Road

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N.C. Highway 3

N.C. Highway 49

N.C. Highway 73

Newbary Court (SR 2935)

Odell School Road

Old Airport Road

Old Charlotte Road

Old Farm Road

Old Holland Road

Old Salisbury Road

Pitts School Road

Poplar Tent Road

Quay Road

Roberta Road

Roberta Church Road

Rock Hill Church Road

Rocky River Road

Shadowcrest Drive, SW

South Main Street

South Ridge Avenue

Stough Road

Stowe Lane

Summercrest Drive (SR 2926)

Tangley Court (SR 2929)

Triangle Drive, NW

Union Street

U.S. Highway 29

U.S. Highway 29/601

U.S. Highway 29A

U.S. Highway 601

U.S. Interstate 85

Warren C. Coleman Boulevard

Webb Road

Weddington Road (SR 1431)

Wilshire Avenue

Winecoff School Road

Winghaven Court (SR 2934)

Zion Church Road (SR 1155)

Zion Church Road East (SR 1153)

Collection Methods. The fundamental component of a disaster debris management strategy is the collection of debris. The public expects to have debris removed from neighborhoods immediately after a disaster event. The implementation of disaster debris collection immediately after the disaster event assures the public that recovery efforts are in progress and that the community will return to normal activities quickly. Developing an approach to collect debris during the planning process will allow the City to begin collecting debris immediately following a disaster event.

The debris type, amount, and urgency determines which collection method is used. The two main methods of debris collection are curbside collection and collection centers. The City may tailor the collection operation using curbside collection, collection centers, or a combination of both depending on the size of the affected area, quantities, and types of debris.

Curbside Collection. Curbside collection would be prioritized based on the City's bare pavement routes. Debris would be located at the edge of the right-of-way as a result of response phase operations or placed at the curb or public rights-of-way by the residents

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for NC DOT or the City to collect. The only difference between the subcategories discussed below is the separation of the types of debris at the point of collection.

Mixed Debris Collection. Collecting mixed debris allows residents to place all debris types in one specified area, usually along the public right-of-way in front of their residence. While this is the most convenient for the public, it does not facilitate effective recycling and reduction efforts, as the debris will need to be handled multiple times. Therefore, this method prolongs recycling and reduction efforts and increases operational costs.

Source-Segregated Debris Collection. Residents are directed to sort the debris by material type and place it at the curb in separate piles. Trucks designated for a particular debris type collect the assigned debris and deliver it to a permitted temporary staging area at a debris management site, or deliver it directly to a permitted reduction, recycling, or disposal facility. The disadvantage of this method is that it requires more trucks to collect the different types of debris; however, this increased equipment cost may be offset by avoiding the labor cost and time to manually separate large quantities of mixed debris. Source-segregated debris collection offers the best opportunity for achieving a high salvage value and efficient recycling/volume reduction. This method is important when collecting hazardous and environmentally sensitive debris, such as household hazardous waste and white goods.

Collection Centers. The second type of collection method is to have the residents transport their debris to a common location. Large roll-off bins may be placed on public rights-of-way or public property for the residents to bring their debris for collection. This strategy is well suited for rural, sparsely populated areas or logistically difficult conditions (i.e., hilly neighborhoods) where curbside collection is not practical. Separate bins can be designated for particular types of debris. The associated costs are generally low since the public essentially accomplishes the material collection and separation themselves.

If collection centers are used, employees should be assigned to manage the development of the site and oversee the operations of the collection center. The engineering/planning section needs to design the circulation for proper ingress, egress, and collection bin exchanges. Employees need to be stationed at the centers during the collection period in order to ensure that full bins are replaced with empty bins, to ensure that debris materials are placed in the correct bins, and to ensure that the collection center does not become a dumping ground for non-disaster-related debris.

Special Handling Needs. The two most common types of debris that will need special handling are hazardous waste and white goods. Regardless of which collection method is used, the City needs to understand the effects this collection can have on the overall debris clearance, removal, and disposal mission. State environmental agencies and the EPA provide first response functions in cases of commercial, agricultural, industrial, and

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toxic waste spills. Regulatory contact information and guidance documents for HHW and white goods management are provided in the appendices.

Household Hazardous Waste. Household hazardous waste (HHW) mixed with other debris types will contaminate the entire load, which necessitates special disposal methods such as storage in a particular part of a landfill. Typically, the landfill requires special liners and a more intense permit standard due to the hazardous waste. The disposal cost of HHW is generally higher than the disposal of other waste; therefore, the overall cost of debris disposal can escalate quickly if the HHW collection and disposal is not planned and executed with care.

White Goods. The City needs to take special care in finding certified recycling centers that are permitted to take white goods. Refrigerants and other machine fluids are normally regulated by state environmental agencies and can only be reclaimed by certified technicians and disposed of at a permitted facility. To avoid releases of refrigerants or oils, the collection of white goods should be accomplished carefully by manually placing the appliance on trucks or by using lifting equipment that will not damage the elements that contain the refrigerants or oils. All food items must be removed from white goods by the property owner or tenant. Having contracts or agreements in place prior to a disaster expedites the recovery efforts. Recycling scrap metals and parts from white goods presents an opportunity for the City to offset the collection and disposal costs and reduces the amount of waste going to a landfill.

Preferred Collection Strategy. When possible, the City will strive to collect debris using the source-segregated curbside collection method, which means that property owners must sort the FEMA-eligible debris generated on their property. Educational information will be distributed to assist the public with proper and safe techniques for debris segregation. This strategy will maximize the recovery of recyclables, minimize HHW contamination, and minimize the land required for collection centers and debris management sites. Additionally, the public will not be exposed to hazards that may be encountered traveling to and from collection centers and at collection centers. If curbside collection is not performed in a timely manner, illegal dumping may become a problem. If the City will not be able to collect debris from the affected area within a reasonable time period following a debris-generating event, contract services may be utilized or collection centers may need to be provided. The City will only collect segregated FEMA-eligible material and will not collect mixed debris.

Staffing needs and assignments will be determined by the Debris Project Manager. If needed, the Debris Project Manager will initiate contract services to assist with the collection, processing, and disposal of debris.

Curbside collection activities should begin as soon as roadways are cleared because the initial roadside piles of debris become the dumping location for additional yard waste and

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other storm-generated debris, such as construction material, personal property, trash, and white goods. Typically, disaster debris removal includes multiple passes through each area affected by the disaster. During the first pass, the City will collect vegetative debris only.

City forces will not collect HHW. Cabarrus County operates a Household Hazardous Waste Facility, which is open to the public two days per month. This facility provides a means for residents to legally dispose of unused HHW. After a debris-generating event, the City should coordinate with the County to expand the hours of operation or offer auxiliary drop-off sites as necessary to avoid the commingling of the hazardous waste with other disaster-related debris. The removal of HHW from the debris stream limits the amount of contaminated waste, thereby reducing the overall disposal cost of the debris. If large volumes of HHW are generated by a disaster, the City may elect to contract with a private company for the collection of the HHW. The City may consider having emergency hazardous waste removal/disposal contracts in place, or pre-qualifying contractors to perform the work and preparing generic scopes of work that can be fine tuned with minimal effort.

After the majority of the vegetative debris has been collected and HHW has been segregated, the City will provide curbside collection of the remaining FEMA-eligible disaster debris-related household waste. Private property debris removal is generally not eligible for reimbursement under the Public Assistance Program because debris on private property does not typically present an immediate health and safety threat to the general public. Also, debris removal from private property is typically the responsibility of individual private property owners. Other sources of funding, such as insurance, are commonly available to property owners to cover the cost of any required work. When private property owners hire private contractors, those contractors will be responsible for the removal and disposal of debris from that property. The City will not knowingly collect debris generated by private contractors.

FEMA will work with the City if a large-scale disaster affects Concord and will designate those areas where debris is so widespread that removal of debris from private property is in the public interest (on a case-by-case basis). Prior to the commencement of debris removal from private property, the City must submit a written request to the FCO seeking approval for reimbursement and submit documentation confirming an immediate threat to the public and the City's legal responsibility to eliminate the threat posed by the debris.

City forces will collect white goods by request. White goods will be delivered to the County's household hazardous waste and recycling center. If additional storage space is required, white goods may be stored at the City's Operations Center.

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Chapter 5: Debris Management Sites

Guidelines

Debris Management Sites (DMS) are established when the City is unable to take debris directly from the collection point to the final disposal location. These sites are used to temporarily store, reduce, segregate, and/or process debris before it is hauled to a recycling facility or permitted landfill. A DMS may be used to increase operational flexibility when landfill space is limited, when the landfill is temporarily inaccessible, or when the landfill is not in close proximity to the debris removal area. Before choosing to use a debris management site, the City should consider the advantages and disadvantages.

The advantages of a DMS are:

- Flexibility of operations. The DMS may also include a collection center for the public's use.
- Facilitation of recycling and reduction of debris. Specific reduction, recycling, or segregation needs can be designed into the site.
- Expedition of debris collection. Having a site for temporary storage and reduction allows time for local landfill site preparation before final disposal. The DMS may also be established at a location central to the disaster event, thereby reducing travel time from the disaster area to the disposal site.

The disadvantages of a DMS are:

- Additional cost to handle the debris twice – once to the DMS and the second time to final disposition.
- If City-owned land is not available, leasing land is expensive.
- Additional costs for proper planning, engineering, and permitting.
- Considerable time and effort required to complete environmental and historic preservation compliance reviews prior to establishing the site.
- Environmental review and potentially extensive site cleanup may be necessary to properly close the site.
- DMS requires dedicated site management and staff for efficient operations, safety, and documentation.

Identifying Debris Management Sites. Identifying potential sites before a major natural disaster expedites debris removal and subsequent volume reduction and disposal actions. The City should develop and maintain a current list of potential debris storage and reduction sites. Site selection should be based on the following criteria:

- Ownership,
- Size,
- Location, and
- Environmental and historic preservation concerns (baseline study findings).

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Ownership. The City should consider public property first to avoid costly land leases and liability issues. Existing disposal or recycling facilities that are in close proximity to the disaster area are ideal. Nearby landfill and recycling center capacities should to be evaluated for DMS feasibility. City-owned sites that will not require extensive repair costs, such as parks, vacant lots, or sports fields, should be considered as well. State-to-city, county-to-city, or city-to-city agreements may present possible solutions for public land use. Criteria for the potential use of private property should be developed by engineering/planning staff for times when public land use is not possible.

Private land leases shall be reviewed in advance of the disaster by the legal staff in order to avoid liability for damage claims upon lease termination. The duration of the land lease agreement should be inclusive of all the time the City will be present at the site, beginning with the baseline environmental study and ending after all City activities are completed.

The agreement shall include a requirement to conduct a baseline environmental evaluation of the site before the site is occupied and an environmental evaluation before the end of the lease. Both documents may be exhibits to the land lease agreement. Any lease agreements should contain provisions to release the City from future damages.

Size. The size of the DMS is dependant on the quantity of debris that needs to be stored and processed. The site should be large enough to safely accommodate processing of various debris materials, storing heavy equipment, and maneuvering trucks and large processing equipment. Historic disasters have shown that it takes 100 acres of land to process one million cubic yards of debris. USACE has found that approximately 60 percent of the area will be used for roads, buffers, burn pits, HHW disposal areas, etc.

Location. The DMS should be established in an area that is accessible from a major transportation corridor, but does not impede the flow of traffic, disrupt local business operations, or cause dangerous conditions in residential neighborhoods or schools. Whenever possible, debris management sites should not be located near residential areas, schools, churches, hospitals, and other such sensitive areas. The DMS requires good ingress/egress to accommodate heavy truck traffic. The planning staff may need to consider adjusting traffic signals to accommodate projected truck traffic on critical haul routes.

The engineering/planning staff needs to consider public acceptability when selecting a potential DMS. Public perception is largely dependent upon the activities planned for the site. Smoke from burning, around-the-clock light and noise from equipment operation, dust, and traffic are generally tolerated early in a disaster recovery operation, but may have to be curtailed later. The City should notify citizens early about planned site activities and possible ramifications.

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Environmental and Historic Preservation Concerns. When selecting public or private sites, pre-existing conditions should be considered because the sites will have to be restored upon site closeout. Proper management of the DMS allows the site to be closed with manageable efforts. For site closure reasons, the City should refrain from aggravating an existing environmental issue during the debris management operations.

Therefore, a DMS should not be established in an environmentally or historically sensitive area such as wetlands, critical animal and plant habitats, sole source aquifers, freshwater well fields, historic districts, or archeological sites. DMSs should avoid Superfund sites and areas within a 100-year floodplain. DMS selection criteria should also take into consideration any disproportionately high or adverse impacts on minority or low-income populations, in accordance with EO 12898. Adverse impacts should be avoided or minimized where possible. If an environmental or historic preservation concern is found during the baseline data collection process (described below), the potential site should be ranked lower than others. However, if use of such areas is unavoidable, compliance with the State and local environmental and historic preservation requirements is still required.

Collecting Baseline Data. By conducting a baseline data collection study, the engineering/planning staff is able to further establish the feasibility of potential sites, document the existing site, and vet potential environmental issues. Data collection needs to be completed prior to establishing the site and continued throughout the operations. The final evaluation should include the same documentation in order to avoid disagreements on the condition of the site prior to the operations and the condition to which it was returned.

Baseline data collection is essential to documenting the condition of the land before it is used as a DMS. Private and public land used as a DMS needs to be returned to its original condition following the end of all debris operations. As soon as a potential site is selected, the Debris Project Manager and staff should work closely with local and State officials to develop baseline data criteria. The following actions are suggested to document the baseline data on all sites:

- Thoroughly videotape and/or photograph (ground or aerial) each site before beginning any activities. Periodically update video and photographic documentation to track site evolution.
- Document physical features. Note existing structures, fences, culverts, irrigation systems, and landscaping that can help evaluate possible damage claims made later.
- Investigate historic significance. Research the past use and ownership of the property to document any issues regarding the existence of historic structures or

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archeological sites. The NC State Historic Preservation Office may have information about the property.

- Sample the soil and water on the site. Soil and groundwater samples should be collected prior to use of the site. Advance planning with community and State environmental agencies can establish requirements, chain of custody, acceptable sampling methods, certified laboratories, and testing parameters. If in-house assets are not available, the planning staff may consider establishing a contract with an environmental consulting firm that can respond rapidly. Planned HHW, ash, and fuel storage areas should be sampled prior to site setup.

Planning an Environmental Monitoring Program. As operations proceed, additional data should be collected throughout the operations for closeout and quality assurance reasons. The data can be compared to the previously established information to determine any remediation that may be necessary.

- Sketch site operation layout. DMS operations may grow, shrink, or shift on the site. It is important to track reduction, hazardous waste collection, fuel, and equipment storage in order to sample the appropriate locations for soil and water for contaminants. Periodically map or sketch activity locations so that areas of concern can be pinpointed later for additional sampling and testing.
- Document quality assurance issues. Document operations that will have a bearing on site closeout, such as petroleum spills at fueling sites; hydraulic fluid spills at equipment breakdowns; installation of water wells for stock pile cooling or dust control; discovery of HHW; and commercial, agricultural, or industrial hazardous and toxic waste storage and disposal.
- Restore site. Final restoration of the landscape must be acceptable to the landowner, but within reasonable expectations. Therefore, plan the landscape restoration as early as possible, preferably incorporating provisions within the lease.

Obtaining Permits. Environmental permits and land-use variances are required to establish a temporary DMS. Several agencies may be involved in issuing permits and granting land-use approvals. Potential permits and plans to establish a DMS include:

- waste processing and recycling operations permits,
- temporary land-use permits,
- land-use variances,
- traffic circulation strategies,
- air quality permits,
- water quality permits,
- sedimentation and erosion control permits,
- HHW permits, and
- fire department (open burning) permits.

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Planning Site Set-Up and Operations.

Site Design. The information gathered during the baseline data collection becomes important to the design of the site. Additional concerns, such as site operations and closure criteria, need to be taken into consideration when the site is designed. Many of these issues will be addressed in planning, but will be implemented after the debris-generating event occurs.

Site Preparation. The topography and soil/substrate conditions should be evaluated to determine the best site layout. When planning site preparation, the designer should consider ways to make site closure and restoration easier. For example, if the local soils are very thin, the topsoil can be scraped to bedrock and stockpiled in perimeter berms. Upon site closeout, the uncontaminated soil can be re-spread to preserve the integrity of the tillable soils. Operations that modify the landscape, such as substrate compaction and over-excavation of soils when loading debris for final disposal, adversely affect landscape restoration.

Site Layout. The efficiency and the overall success of the DMS operations are determined by how the site is designed. Debris should be constantly flowing to burners and grinders, or recycled with the residual and mixed construction and demolition materials going to a landfill. Significant accumulation of debris should not be allowed to occur at temporary DMSs, due to environmental and safety concerns, such as the risk of fire. Moreover, permits for such sites usually impose maximum capacity restrictions. Additional debris management sites may be required if the actual debris quantities flowing into the site are greater than the site storage and processing capacity.

Operational Boundaries. Operational boundaries are the boundaries or areas that clearly define the difference in use areas at the DMS. In establishing the operational boundaries, the DMS design staff may consider using earthen berms, temporary barriers, or any other physical restriction. This aids traffic circulation and helps keep debris amassing at the DMS to a minimum. Specific buffers are required by the NC Department of Environment and Natural Resources. These buffers are identified in guidance documents included in the appendices.

Common operations are:

- grinding or burning (volume reduction),
- storing recyclables,
- storing HHW,
- unloading (tipping areas) for City crews and contract services,

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- unloading (collection centers) for the general public (this may include vegetative, recycling, or construction and demolition debris),
- loading of processed debris to go to its final disposition,
- monitoring loads at all ingress and egress points, and
- storing equipment, fuel, and water.

The separation between all of the operations listed above needs to be clearly delineated and defined. As operations proceed, the lines may be moved to accommodate either growing demand for space or a reduction needed space in preparation for closure. The reduction, recycling, tipping, and loading areas need ample room for large equipment operations. The design should take into consideration the possibility of multiple pieces of equipment being in the same activity area at one time. Depending on the scale of operations, each debris stream may have its own tipping area and should be designed accordingly.

General public drop-off areas for recycling, reduction, and construction and demolition debris may be included within a DMS. These public use areas should be carefully designed for passenger vehicle traffic and public safety. HHW storage should be close to the public drop-off center yet restricted so that qualified personnel may process the waste appropriately. The design staff may consider constructing an impermeable lining and earthen berms in order to contain spills and prevent surface water runoff from leaving the area.

Monitoring towers should be located at ingress and egress points. Monitoring towers should be constructed of durable structural materials. The structures should be designed to withstand active and static loads. A stepladder is not an acceptable monitoring tower.

Equipment and fuel should have a designated storage area and signs posted appropriately. The fuel storage areas need to be designed to contain spills. Water should be readily available at all times. Water storage areas should be strategically positioned throughout the site and identified appropriately.

Traffic Patterns. The traffic circulation needs to be well defined throughout the entire site. Although traffic signs and barricades aid in directing traffic, the engineering/planning staff may consider flag personnel to help direct traffic. Drivers unfamiliar with the new environments, routes, and rules will need assistance in order to safely navigate through the DMS. Optimally, the designed traffic pattern should allow trucks to enter and exit through different access points, as long as each is monitored.

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Haulers are typically paid by the volume of a load. The load is evaluated when entering the site as a percentage of the full capacity of the truck. Stationing monitors at the monitoring tower located at the ingress point and the egress point ensures every truck releases its entire load prior to leaving the site. This monitoring strategy prevents debris left in a truck from a previous load from being counted again in a subsequent load.

If possible, the empty trucks that enter the site to remove the processed (reduced) debris should enter and exit through an access point other than that of all other traffic. This reduces site management and debris monitor confusion regarding debris being deposited or leaving the site.

Site Management

Debris management site oversight and assignments will be the responsibility of the Debris Project Manager. Each site will have a site manager that is an employee of the City of Concord. Site managers will be responsible for supervising the overall day-to-day operations, maintaining daily logs, preparing site progress reports, and enforcing safety and permitting requirements during site operations. The site manager is also responsible for scheduling the environmental monitoring and updating the site layout. The site manager has oversight for monitoring the activities of the debris removal contractors and the onsite debris processing contractors to ensure they comply with the terms of their contracts. Monitors will be placed at ingress and egress points to quantify debris loads, issue load tickets, inspect and validate truck capacities, check loads for hazardous waste, and perform quality control checks. Engineering Department construction inspectors will assist with monitoring activities at the temporary debris management sites. The City's Safety Officer will be responsible for traffic control, observe site activities, and ensure compliance with applicable health and safety standards.

Establishment and Operations Planning

Permits. DMSs must be permitted by the NC Department of Environment and Natural Resources' Division of Waste Management. In the event of a major disaster such as an ice storm, hurricane, or tornado, some governmental permit requirements may be suspended, temporarily. If this not the case, permits such as those for temporary debris management sites, landfills, land disturbances, highway entrance/driveway permits, and others as may be needed. The North Carolina Department of Environment and Natural Resources, NC DOT, and the U.S. Forestry Service should be consulted to determine permits that may be required, processes for obtaining permits, and inspection timetables. The Debris Project Manager, will be responsible for applying for and obtaining the required permits from the appropriate agency(s). If possible, permits will be obtained prior to the event and permits will be renewed as needed for each site.

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Regardless of whether or not a permit is required, the City of Concord will comply with all State and local regulations for debris management sites, landfills, land disturbances, and open burning. Best management practices will be put in place at the activation of any site and maintained throughout the use of each site.

Locations and Layouts. The City's Engineering Department will assist with site selection and the development of site layouts in accordance with all necessary zoning and environmental regulations and the guidelines listed in this document.

According to the City's design disaster event, a Category 1 hurricane, the City may require as much as 16.7 acres for temporary debris storage and processing. A list of potential debris management sites is provided in the appendices along with the baseline data for each site and any approved site plans.

Volume Reduction Methods

Stockpiled debris may include woody vegetation, construction material, household items, and yard waste. HHW and medical wastes will be segregated and removed prior to stockpiling. Activities at the debris management sites will include any one or a combination of the following activities: stockpiling, sorting, recycling, grinding and chipping, and burning. If possible, the debris that is removed from the damage sites will be taken directly to a recycling facility or landfill. If temporary debris management sites are used to process vegetative debris, the latest version of the NCDENR Guide – Vegetative/Land Clearing Debris should be used to determine minimum setbacks and operational parameters.

***Recycling*.** The City will strive to reduce the debris volume before it is hauled to a landfill. Recycling is attractive because portions of the recovered material may have an economic value if it can be sorted and sold. Although source-segregated debris is preferred, a portable Materials Recovery Facility could be set up at the DMS if necessary. Metals, wood, and soil are ideal materials for recycling. However, the operations required to recycle these materials may create a negative environmental impact. Also, in areas where a large amount of chemical agricultural fertilizer has been used, the recovered soil may be too contaminated for use on residential or existing agricultural land.

Hurricanes and tornadoes may present opportunities to contract out large scale recycling operations if desirable material is segregated as it arrives at the DMS. Therefore, recycling should be considered early in the debris removal and disposal operation because it may present an opportunity to recover some of the operational costs and reduce the disposal costs. The materials identified below are suitable for recycling. Other materials that cannot be recycled, such as cloths, rugs, and trash, can be sent to a landfill for final disposal.

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Metals. Hurricanes and tornadoes may cause extensive damage to mobile homes, sun porches, and green houses. Trailer frames and other ferrous metals may be suitable for recycling. Metals can be separated using an electromagnet. Metals that have been segregated can be sold to metal recycling firms. Special care will be taken to separate white goods with refrigerant and other regulated fluids that must be reclaimed by certified technicians. Most non-ferrous metals are suitable for recycling.

Soils. Clean-up operations using large pieces of equipment collect large amounts of soil. The soil is transported to the debris management sites where it is combined with other organic materials that will decompose over time. Soil can be recovered if the mixed debris is put through some type of screen or shaker system. This procedure can produce significant amounts of soil that can either be sold or recycled back to the agricultural community. This soil could also be used at local landfills for cover. It may be more expensive to transport and landfill soil than to sort out the heavy dirt before disposing of the non-soil material. Monitoring and testing of the soil may be necessary to ensure that it is not contaminated with chemicals.

Wood. Woody debris can be either ground or chipped into mulch. Painted wood and treated wood are considered Construction Materials shall not be ground with vegetative debris.

Construction Materials. Concrete block and other building materials can be ground and used for other purposes. Construction materials and wood can also be shred to reduce volume. This construction material could also be used at local landfills for cover.

Grinding and Chipping. Grinding and chipping will be utilized as a viable reduction method. Grinding and chipping can reduce the debris volume by a 4 to 1 ratio. For grinding and chipping to be economical, 25% of volume must have some beneficial use.

The City would contract grinding operation if deemed necessary due to large quantities of stumps, leaves, and limbs. A list of potential grinding contractors is provided in the appendices.

Burning. The three primary burning methods are open burning, air curtain pit burning, and incineration. Controlled open burning is a cost-effective method for reducing clean woody debris in rural areas. Burning reduces the volume by 95%, leaving only ash residue for disposal. The U.S. Environment Protection Agency discourages open burning as a primary disposal technique but understands that emergency situations may require exemptions. Decisions are on a case-by-case basis. Air curtain pit burning substantially reduces environmental concerns. The blower unit must have adequate air velocity to provide a “curtain effect” to hold smoke in and to feed air to the fire below. Portable

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incinerators are similar to air curtain pit systems, except portable incinerators utilize a pre-manufactured pit in lieu of an onsite constructed earth/limestone pit. Environmental controls are essential for all burning methods, and the following will be considered.

Permitted Use. Open burning in North Carolina is regulated by the North Carolina Department of Environment and Natural Resources, Division of Air Quality. The current rule prohibits most outdoor burning and sets conditions for allowable fires. In addition, the City of Concord established an open burning ordinance. Section 34-4 of the municipal code defines open burning as "the burning of any matter in a manner that the products of combustion resulting from the burning are emitted directly into the atmosphere without passing through a chimney, or a permitted air pollution control device."

The amount of debris which can be generated by a disaster can easily overwhelm existing capacities of local solid waste management facilities and force communities to use disposal options which would otherwise not be acceptable. Since a majority of the material generated in a disaster is non-hazardous, open burning is a possible solution.

The City of Concord does not promote burning of debris as a primary method of addressing disaster debris since citizens do not want to inhale the smoke generated from the process. However, the City recognizes that burning may be a safe and economical alternative to address the shear volume of debris generated. Section 34.4 (c) (5) of the municipal code states: "On the sole discretion of the fire department there exists an extreme or emergency circumstance which lacks any other reasonable means of disposing of items which need to be disposed of, and not addressed in this section, the fire department may issue a permit to burn. These fires shall be limited to the disposal of material generated during a natural disaster such as a tornado, hurricane or flood."

The Concord Department of Fire and Life Safety will be responsible for the management and approval of all open burning sites for disaster debris disposal. Each site will require inspection and issuance of a permit. The primary method to be employed will be the use of Air Curtain Burners.

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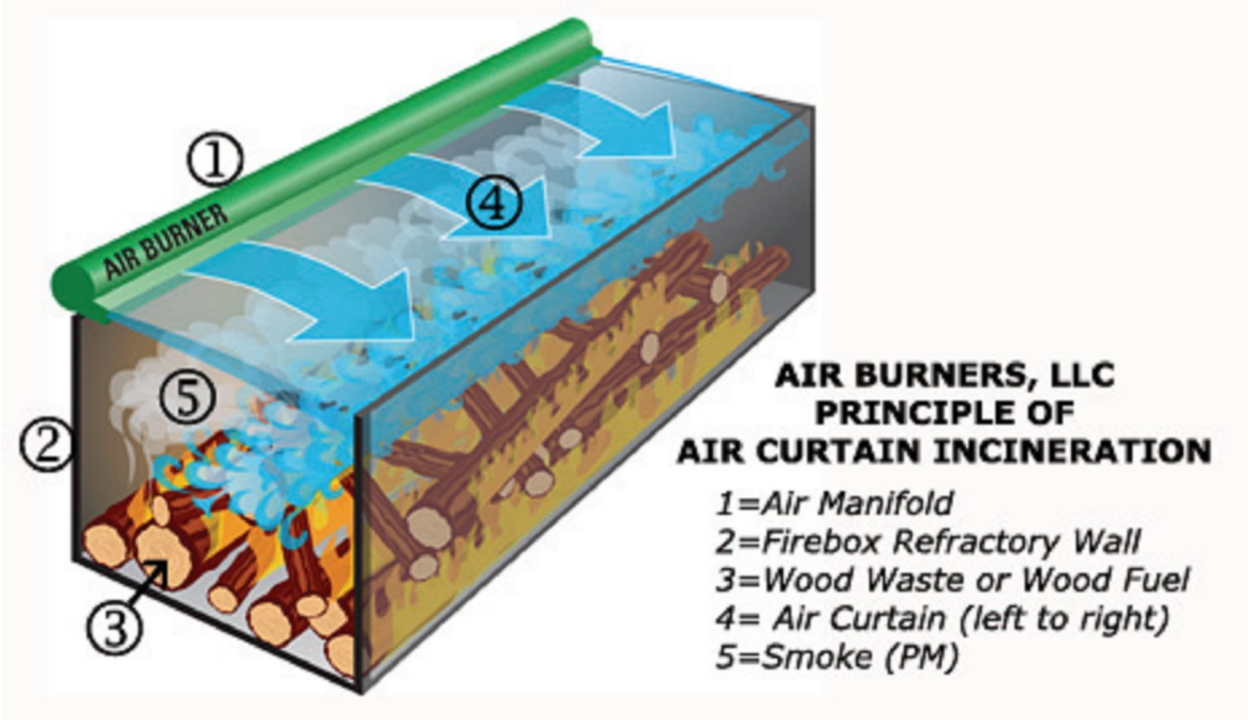

EPA testing of air curtain burners has been proven as an effective pollution control device for open burning. An air curtain burner reduces or eliminates the smoke that results from burning clean vegetative waste. A curtain of high velocity air is pushed over the fire, traps the smoke particles and causes them to re-burn. This curtain prevents a viable column of smoke from burning vegetative debris. The air curtain burner also oxygenates the fire, resulting in a 98% reduction in mass (100 tons of waste would be reduced to less than 1 ton of clean ash which could be recycled into the soil).

Location. Identifying acceptable sites for air curtain burning (ACB) operations is a coordinated effort between the NC Division of Waste Management's Solid Waste Section and Division of Air Quality regional office staff. This effort is conducted by evaluating the surrounding areas and reevaluating potential sites used in the past.

Access. Provisions should be made to prevent unauthorized access to facilities when not open for use. As a temporary measure, access can be secured by blocking drives or entrances with trucks or other equipment when the facilities are closed. Gates, cables, or other more standard types of access control should be installed as soon as possible. When possible, signs with operating hours and information about what types of waste are accepted should be posted. Also, information as to whether only commercial haulers or the general public may deposit waste should be included.

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Pit Specifications. Unless a portable incinerator is used, the incineration pits will be constructed with limestone and reinforced with earth anchors of wire mesh to support the weight of the loaders. There will be a 1-foot impervious layer of clay or limestone on the bottom of the pit to seal the ash from the aquifer. The ends of the pits will be sealed with dirt or ash to a height of 4 feet. A 12-inch dirt seal will be placed on the lip of the incineration pit area to seal the blower nozzle. The nozzle will be 3-6 inches from the end of the pit. One-foot high, unburnable warning stops will be placed along the edge of the pit's length to prevent the loader from damaging the lip of the incineration pit. The pit will be no longer than the length of the blower system.

Contents. Hazardous or contaminated ignitable material will not be placed in the pit to prevent contained explosions. Only untreated and unpainted lumber and tree debris may be burned.

Air Curtain. The airflow will hit the wall of the pit about 2 feet below the top edge of the pit, and the debris should not break the path of the airflow except during dumping.

Loading. The pit should be loaded uniformly along the length.

Ash Removal. The fire will be extinguished approximately two hours before anticipated removal of the ash mound. The ash mound will be removed when it reaches 2 feet below the lip of the pit. Wood ash shall be wet prior to removal from the ACB device or earth pit and placed in storage. If the wood ash is to be stored prior to removal from the site, then rewetting may be necessary to minimize airborne emissions.

Ash Disposal. Wood ash to be land applied on site or off site shall be managed in accordance with the NC Division of Waste Management's most recent guidance documents and shall be incorporated into the soil by the end of the operational day or sooner if the wood ash becomes dry and airborne. The NC Division of Land Resources, Land Quality Section should be contacted for assistance on good erosion control measures and permitting guidance.

Environmental Monitoring Program

During the debris removal process and after the material has been removed from each of the DMSs, environmental monitoring will be needed to close each of the sites. The goal of this process is to ensure that no long-term environmental contamination is left on the site. The monitoring will be done on three different media: ash, soil, and groundwater. The monitoring of the ash will consist of chemical testing to determine the suitability of the material for landfilling. Contamination may occur from petroleum spills at staging and reduction sites or runoff from the debris piles, incineration sites, and ash piles. Monitoring of the soils will be by portable methods to determine if any of the soils are contaminated by volatile hydrocarbons. The monitoring of the groundwater will be done on selected sites to determine the probable effects of rainfall leaching through either the

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ash areas or the stockpile areas. Once all debris has been removed, the current site data will be compared to the data (e.g., pictures, maps, sketches, testing) collected during the site preparation. If warranted, additional testing may be performed at locations adjacent to the site if approved by the appropriate property owner(s).

Site Closure

When the site operations are complete, the property must be restored to its original condition. Restoration of a site involves removing all traces of the operations and possible remediation of any contamination that may have taken place during the operations. Debris, processing equipment, storage tanks, protection berms, and other structures built on the site should be removed from the site upon completion of all debris removal and processing operations.

The final environmental site evaluation is an extension of the environmental monitoring program. Similar testing as completed in the baseline study will be conducted to confirm that the site has been returned to its pre-activity state. Test samples should be taken at the same locations as those of the initial assessment and monitoring program. However, if warranted, additional test samples may need to be taken at other locations on or adjacent to the site.

The basic close-out steps for debris management sites once all debris has been removed are:

- conduct an environmental audit or assessment;
- develop a remediation or restoration plan approved by the appropriate environmental agency;
- execute the remediation or restoration plan;
- get written acceptance from the landowner (if property is not City-owned); and
- terminate lease payments, if applicable.

If burning was used for volume reduction, all ash will be removed and remediation actions will be taken as needed. All debris, processing equipment, storage tanks, if any, and structures will be removed. Top soil, if removed and stockpiled, will be reapplied. Quality assurance inspectors will monitor all closeout and disposal activities to ensure that contractors, if used, complied with contract specifications. Additional measures may be necessary to meet local, state, and federal environmental requirements because of the nature of the staging and reduction operation. If sites are leased, a final written release from future damages will be obtained when the site is returned to it owner.

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Chapter 6: Contracted Services

Emergency Contracting and Procurement Procedures

Contracting for labor and equipment may be necessary if the magnitude of the emergency debris clearance, removal, and disposal operation is beyond the capabilities of City resources, State resources, mutual aid agreements, and volunteer labor and equipment.

The Debris Project Manager will be responsible for initiating contracting procedures and defining a specific scope of service. The Debris Project Manager, assisted by the Purchasing Manager, has the responsibility of developing, processing, and administering debris clearance, removal, and disposal contracts. Standard contracts prepared by the Legal Department shall serve as the template for contract development. Contract administration includes, but is not limited to:

- Determining the procurement method and type of contract needed to satisfy specific debris clearance, removal, and disposal requirements;
- Soliciting bids, evaluating offers, awarding contracts, and issuing notices to proceed;
- Supervising the full acquisition process for service and supply contracts and overseeing contract actions to ensure conformance to regulatory requirements;
- Accepting the services performed by the contractor; and
- Recommending and initiating payment.

Contracts shall be routed through the City's standard approval process unless an exception has been approved by the City Council.

Debris Operations to be Outsourced

Based on the amount of time required to clear, remove, process, and dispose of disaster-related debris and the resources available to provide a continuity of municipal services, the City may elect to contract any one or all of the following activities:

- Clearing;
- Collecting/hauling FEMA eligible debris to permitted debris management sites, recycling facilities, or landfills;
- Processing vegetative debris (grinding/chipping or burning);
- Collecting/hauling household hazardous waste; and
- Conducting environmental analyses of DMSs.

Should the City of Concord decide to award contracts for debris removal, the City:

- Will not allow contractors to make eligibility determinations; as they have no authority to do so.
- Will utilize pre-negotiated contracts if available.

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- Will utilize formal competitive bid procedures when time permits. If time does not permit normal competitive procedures, competitive bids still may be obtained using a reduced time frame for submittal for bids.
- Will request copies of references, licenses, and financial records of unknown contractors.
- Will document procedures used to obtain contractors.
- Will not accept contractor-provided contracts without close review. If necessary will request technical assistance from FEMA on contracts and contract procedures.

Methods of Procurement

FEMA finds the following four methods of procurement acceptable. In some cases, the State's and/or the City's purchasing policies are more stringent and should be cross-referenced with the information in this section.

Small Purchase Procedures. This informal method of procurement may be used for securing services or supplies that do not cost more than $100,000; however, several price quotes must be obtained from different sources.

Sealed Bids. This formal method of procurement requires publicly advertised and solicited bids. The contract is awarded to the responsible bidder whose proposal is the lowest in price. Sealed bids are FEMA's preferred method for procuring construction contracts.

Competitive Proposals. This method of procurement is similar to sealed bid procurement in that contracts are awarded on the basis of contractor qualifications instead of price. This method is often used for procuring architectural or engineering professional services. Additionally, this method normally involves more than one source submitting and offer and is used when conditions are not appropriate for sealed bids.

Non-Competitive Proposals. This method of procurement should only be used when the award of a contract is not feasible under another procurement method and one of the following circumstances applies:

- The item is available only from a single source,
- An emergency situation does not permit a delay, or
- Solicitation from a number of sources has been attempted, and competition determined to be inadequate.

FEMA strongly discourages non-competitive contracts for debris removal operations. A contract may be regarded as non-competitive if the City has only one responsive bidder. In this case, the City is required to comply with 44 CFR Part 13.36(f), which states in part:

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"…A cost analysis will be necessary when adequate price competition is lacking, and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or based on prices set by law or regulation. A price analysis will be used in all other instances to determine the reasonableness of the proposed contract price."

The City is required by 44 CFR Part 13.36(f)(2) to negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. Consideration shall be given to the complexity of the work performed, risk borne to the contractor, contractor's investment, amount of subcontracting, quality of the contractor's record of past performance, and industry profit rates in the surrounding geographical area for similar work.

Contract Types
FEMA provides reimbursement for the following four types of contracts.

Lump Sum. Under this type of contract, work is performed within a prescribed boundary with a clearly defined scope and total price. Lump-sum contracts may be defined in one of two ways:

1. The area method, where the scope of work is based on a one time clearance of a specified area; or
2. The pass method, where the scope of work is based on a certain number of passes through a specified area.

Unit Price. Under this type of contract, work is performed on an item-by-item basis with costs determined per unit, such as weight (tons) or volume (cubic yards). Unit price contracts require close monitoring of pick-up, hauling, and dumping to ensure that quantities are accurate.

Cost Plus Fixed Fee. This type of contract is could be either a unit price or lump sum contract with a fixed contractor fee added into the price. In accordance with 44 CFR Part 13.36(f)(4), cost plus percentage of cost contracts shall not be used. Use of such contracts may result in FEMA limiting the Public Assistance grant to an amount determined to be reasonable based on the eligible work performed.

Time and Material. Under this type of contract, the contractor bills the City for labor, equipment, materials, and overhead. These contracts should be avoided, but may be allowed for work that is necessary immediately after the disaster has occurred when a clear scope of work cannot be developed. Time-and-material contracts are allowed in circumstances when they are more cost-effective and appropriate for the amount and type of eligible work to be performed. The costs must be reasonable for the type of work

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required. The City must engage in comprehensive active monitoring activities to ensure contractor efficiency. Typically, FEMA will reimburse for only 70 hours of a time-and-material contract. If this type of contract is awarded, the City must:

- Monitor and document contractor expenses,
- Have a "not to exceed" provision in the contract, and
- Contact the State to ensure proper guidelines are followed.

After 70 hours of work, the City should have sufficient information on the scope of work necessary to complete debris collection and disposal, and on a basis for estimating a reasonable cost for the contract work, to effectively solicit a lump sum or a unit price contract. For some types of debris work where time-and-material contracts may be the most cost-effective and the most well-suited to the type of work, applicants should work closely with the State and FEMA to ensure eligibility requirements are met.

Other Considerations

Piggyback Contracts. FEMA does not favor "piggyback contracts." Federal-aid applicants have used piggyback contracts on occasion to have disaster-related work performed by another jurisdiction's contractor. The variables associated with the scope of work and costs generally make this an option to be avoided. The competitive procurement requirements of 44 CFR Part 13 are also a prime concern. If FEMA encounters a request for reimbursement of costs derived from such a contract, the reimbursable costs for eligible work will be based on reasonableness.

Content. The following language and provisions should be incorporated in the City's standard contracts.

Scope of Services. The contract scope of services should reference "eligible work," "work eligible under FEMA Public Assistance regulations, policies, and guidance," "work performed on public property and/or public rights-of-way," or use other similar language.

Payment Contingencies. Contract payment provisions should address the obligations between parties to the contract only and should not include any language that makes payment to the contractor contingent upon the City's receipt of funding from FEMA.

Contracts over $10,000. All contracts in excess of $10,000 must contain a provision for termination for cause and for convenience by the City, including the manner by which it will be effected and the basis for settlement, according to 44 CFR Part 13.36(i)(2).

Contracts over $100,000. For contracts over $100,000, the City must have the following minimum bonding requirements, in accordance with 44 CFR Part 13.36(h):

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- A bid guarantee from each bidder equivalent to five percent of the bid price;
- A performance bond on the part of the contractor for 100 percent of the contract price; and
- A payment bond on the part of the contractor for 100 percent of the contract price.

***Contractor Selection*.** In accordance with 44 CFR Part 13.36(b)(8):

"Grantees and subgrantees will make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources."

***Documentation*.** Documentation requirements are specified in 44 CFR Part 13.36(b)(9) and include, but are not limited to, rationale for the procurement method, contract type, contractor selection or rejection, and the basis for contract price.

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Chapter 7: Private Property Demolition and Debris Removal

The City of Concord will be responsible for removing debris from the public rights-of-way that are not the responsibility of the NC DOT. Only when pre-approved and it is deemed in the public interest will the City remove debris from private property. Because of the limited quantity of resources and service commitments following the disaster, the City may rely heavily on private contractors to remove, collect, and manage debris from private property. Every effort will be made to recycle or reuse desirable material before disposing of debris.

In most circumstances, debris located on private property will be the responsibility of the owner. The Debris Project Manager, with the assistance of the Public Relations Manager, will provide information to private property and business owners concerning any assistance they may qualify for under the FEMA Individual Assistance Program, which will be made available after resolving any of their insurance providers' coverage in the event of a Presidential Declared Disaster that includes Public Assistance.

If publicly-accessible debris management sites (collection sites) are established, the Debris Project Manager and/or the Public Relations Manager will publish these locations along with times of operation and the types of debris accepted. Private property owners may be instructed to transport acceptable debris to the nearest collection site. Private property owners will be advised that dumping debris on public rights-of-way or on property owned by others is illegal and will be aggressively enforced by the Police Department's Code Enforcement Office and/or other relevant enforcement agencies. FEMA Public Assistance (PA) funds may be used for the demolition and removal of resulting debris under the authority of Section 403, Essential Assistance, of the Stafford Act. This section allows for the demolition of unsafe structures that pose and immediate threat to life, property, or public health and safety.

The primary responsibility for demolition of unsafe structures lies with the owner whether it is private or government owned property. Dangerous structures should be demolished to protect the health and safety of adjacent residents. However, if unsafe structures remain because of the lack of insurance, absentee landlords, or under-staffed and under-equipped local governments, demolition of these structures may become the responsibility of the City. The Debris Project Manager, with the assistance of the Code Enforcement Division of the Police Department, will be responsible for taking appropriate action regarding unsafe building notification and/or demolition, in accordance with the municipal code.

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Chapter 8: Public Information Strategy

The Public Relations Manager (PRM) will develop a proactive public information management plan in order to facilitate cleanup and removal. This plan will contain definitions of the types of debris, locations of public and private debris sites, and information on acceptable recycling and volume reduction methods. Emphasis will be placed on actions the public can perform to expedite the cleanup process by separating burnable and non-burnable debris, segregating household and hazardous waste, placing debris at the curbside, keeping debris piles away from fire hydrants and valves, reporting locations of illegal dump sites or incidents of illegal dumping, and segregating recyclable materials.

The PRM will keep the public informed of debris pick-up schedules, disposal methods, and ongoing actions to comply with State and Federal Environmental Protection Agency (EPA) regulations, disposal procedures for self-help and independent contractors, and restrictions and penalties for creating illegal dumps. The PRM will respond to questions pertaining to debris removal from the press and local residents. The following questions are likely to be asked

- What is the pick-up system?
- When will the contractor be in my area?
- Who are the contractors and how can I contact them?
- Should I separate the different debris materials and how?
- How do I handle Household Hazardous Waste?
- What if I am elderly or disabled?

Pre-Scripted Information

Generic disaster debris management promotional materials should be prepared ahead of time so that they can be quickly customized after a disaster to reflect current conditions. These promotional materials may include door hangers or flyers and reflect the primary languages spoken in the City of Concord (English and Spanish).

If advanced warning is provided of the debris-generating event, a handout will be available to the public giving pre-disaster information such as whom to contact, and other general debris management and safety details. A copy of this information is provided in the appendices. After a debris-generating event, local media will be updated regarding changes in schedules, locations, or other disposal procedures that may arise. These media outlets will consist of local radio stations, newspapers, and television station. A list of local news media is provided in the appendices as well.

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Once the response phase of the emergency/disaster has passed and local governments are on the path to recovery, certain resources should be in place to educate the public about on-going debris clearance. These resources should be created and implemented as part of the public relations management plan and be available for use in a disaster.

Distribution Strategy

Library/Internet. Following a disaster, the City's web site can be updated with information specific to disaster debris cleanup. Copies of this information can also be posted at the Cannon Memorial Library.

Hotline. Trained operators at the City's 24-hour hotline (704-920-5555) can compile disaster debris information from the PRM and provide it to interested parties who call. These operators can also generate work orders for City crews.

Connect CTY. Once telephone service is re-established (if lost), programmed messages can be distributed to affected areas.

Emergency Operations Center. Because debris cleanup activities can be on-going for many months after a disaster, the Emergency Operations Center (EOC) should continue to function as a distribution point for information. Often times the EOC ceases to function after the response phase of a disaster; however, the public will need direction concerning disaster debris until the recovery phase is complete. The City may elect to convert the Emergency Operations Center to a Debris Management Control Center and relocate its headquarters to the Alfred M. Brown Operations Center.

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Appendices

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APPENDIX A: Concord Debris Management Contacts

Name	Department	Function	Work Phone	Cell Phone
Allen Scott	Solid Waste Services	Debris Project Manager & Operations Section Chief	704-920-5370	704-791-7425 150*24*8742
Jim Sells	Fire and Life Safety	Emergency Management Coordinator	704-920-5528	980-521-0126 24*21058
Julie Waller	Risk Management	Risk Manager	704-920-5111	980-521-6063 150*29482*2
Peter Franzese	Administration	Public Information Officer	704-920-5210	704-506-0273
Albert Benshoff	Legal	City Attorney	704-920-5114	980-622-6440[1]
Sid Talbert	Finance	Purchasing Manager	704-920-5441	
Joe Wilson	Transportation	Operations	704-920-5362	704-791-7429 24*8746
Bob Pate	Electric Systems	Operations	704-920-5301	704-425-8091
David Ratchford	Buildings and Grounds	Operations	704-920-5380	704-791-7434 24*8751
Pam Hinson	Finance	Administration	704-920-5522	704-577-2616
Shelia Almond	Finance	Administration	704-920-5444	
Shane Russ	Finance	Administration	704-920-5447	
Valerie Proper	Solid Waste Services	Administration	704-920-5361	
Christie Putnam	Water Resources & Stormwater Services	Support for Operations	704-920-5343	980-521-0790
Mark Fowler	Wastewater Resources	Support for Operations	704-920-5351	704-791-6887 150*24*6699
Chris Linker	Communications	Support for Operations	704-920-5590	704-791-6584 24*5132
Bill Dusch	IT Contractor – Technologies Edge	Support for Operations	704-920-5293	
Sue Hyde	Engineering	Engineering/Planning	704-920-5401	704-791-3924 24*2250
Margaret Pearson	Development Services	Engineering/Planning	704-920-5151	980-521-0439 150*24*2197
Jeff Young	Business and Neighborhood Services	Engineering/Planning	704-920-5121	704-791-7422 24*8738
		Emergency Operations Center	704-920-5555	
		Joint Information Center (24-Hour Customer Care Call Center)	704-920-5555	

[1] Private number.

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APPENDIX B: Neighboring Jurisdictions and Area Utility Contacts

Organization	Contact	Phone Number(s)	Cell Phone	After Hours Phone
			use only during regular business hours	
Cabarrus County Emergency Management	Bobby Smith	704-920-2143	N/A	704-920-3000
Water and Sewer Authority of Cabarrus County	Mark Lomax	704-786-1783		704-788-4164 RRWWTP
Charlotte-Mecklenburg Utilities		704-336-7600		
City of Kannapolis	Wilmer Melton	704-920-4200		
Town of Harrisburg		704-455-5614		
Town of Mount Pleasant	Adrian Cox	704-436-2990		
Duke Energy	Charles Waddell	1-800-769-3766	N/A	1-800-769-3766
Union Power Cooperative				1-800-922-6840
PSNC Energy (natural gas)	Kevin Johnson	704-723-4310	704-574-1014	1-877-776-2427
Piedmont Natural Gas (fka NCNG)	John Parsons	704-364-3120	N/A	1-800-752-7504
Plantation Pipeline		N/A	N/A	1-800-510-5678
Colonial Pipeline Company		704-392-8610	N/A	704-392-8610
AT&T	Luis Ortega	1-678-627-5335	N/A	1-800-252-1133
Bellsouth				
NEXTEL				
Sprint Embarq	Noel Campbell	N/A	N/A	1-888-723-8010
Time Warner Cable	Kevin Davis	704-378-2856	980-722-7050	704-378-2626 Option 5, 2, 1
Windstream Communications	Jim Foley	704-722-2000	N/A	1-800-800-6609
Aqua North Carolina		1-336-665-0817		
Carolina Water – Utilities Inc. (Zemosa Acres)		704-525-7990	N/A	704-525-7990
NC One Call Center	Jeff Bartley	1-336-855-5760	1-336-707-4528	1-800-632-4949
NC Department of Transportation	Ronn Posey	704-982-0104	N/A	704-986-3700 Stanly County
Amtrak Police		N/A	N/A	1-800-331-0008
CSX Railroad		N/A	N/A	1-800-232-0144
Norfolk Southern Railway	Richard Snyder	704-560-1449 704-376-3752	N/A	1-800-453-2530
North Carolina Railroad Company	Chuck Burnell	919-954-7601	N/A	N/A

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APPENDIX C: Regulatory Agency Contacts

Organization	Contact	Title	Phone Number
Federal Emergency Management Agency			1-800-621-3362 1-800-745-0243
U.S. Environmental Protection Agency – Region 4			1-800-241-1754
U.S. Army Corps of Engineers – Headquarters			202-761-0011 202-761-5903
U.S. Army Corps of Engineers – Ashville Field Office	Steve Lund		828-271-7980 x 223
NC Division of Emergency Management			919-733-3867
NC OSHA			1-800-625-2267 919-807-2796
NC Department of Transportation	Ronn Posey		704-982-0104
NC Department of Environment and Natural Resources – Mooresville Regional Office			704-663-1699
NC Department of Environment and Natural Resources Customer Service Center			1-877-623-6748
NC Division of Waste Management http://wastenot.enr.state.nc.us/swhome/emergencydebris.asp	Teresa Bradford		704-235-2160 704-663-1699
NC Division of Water Quality – Wetlands and Stormwater Branch			919-807-6380
NC Division of Water Quality – Pretreatment, Emergency Response, and Collection Systems Unit			919-807-6383
NC Division of Water Quality – Groundwater Protection Unit			919-715-6699
NC Division of Land Resources – Land Quality Section			919-733-4574
NC Division of Water Resources			919-733-4064
NC Department of Pollution Prevention and Environmental Assistance			919-715-6500
Cabarrus County Building Inspections	Scott Devaux	Chief Inspector	704-920-2129
City of Concord Development Services			704-920-5152

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APPENDIX D: Hazardous Waste Vendor Contacts

All hazardous waste will be removed by a contractor, who will be selected based on the type of material involved. The City of Concord has identified the following contractors that service our area:

Company	Location	Phone Number	Notes
A & D Environmental Services, Inc.	High Point	800-434-7750 336-434-7750	
Concord Industrial Service Company (CISCO)	Concord	Main: 704-788-1787 Malcolm Whitley's cell: 704-564-2273	does haz-mat for Charlotte FD & underground storage tank removal
Contaminant Control, Inc. (CCI)	Charlotte/Salisbury	888-624-6555 704-273-1500	
HEPACO, Inc.	Charlotte	800-888-7689 704-598-9782	
Evo Corporation	Winston-Salem	877-725-5844 336-725-5844	non-emergency contractor during regular office hours

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APPENDIX E: Recycling Vendor Contacts

	Company	Location	Phone Number	Notes
Glass	Asheboro Recycling	Asheboro, NC	800-948-1280	scrap metal, electronics, aluminum, copper, steel, cardboard, paper, plastic, glass beverage containers
	Waste Industries, Inc.	Supply, NC	910-754-2979	glass, metal, paper, plastic
	Waste Management, Inc.	Gastonia, NC	888-964-9730	glass, metal, paper, plastic & rubber
Metal	Asheboro Recycling	Asheboro, NC	800-948-1280	scrap metal, electronics, aluminum, copper, steel, cardboard, paper, plastic, glass beverage containers
	Bill Lemmons Battery Warehouse & Recycle Center, Inc.	Greensboro, NC	336-273-1145	aluminum, brass, copper, batteries, radiators
	Davis Enterprises, Inc.	Salisbury, NC	704-636-9821	scrap metal, steel
	Foils	Harrisburg, NC	704-455-5134	scrap metal
	Industrial Container Services	Matthews, NC	704-821-7636	steel drums
	Southern Metals Company	Charlotte, NC	704-394-3161	scrap metal (appliances, auto bodies, insulated wire, radiators), aluminum, brass, copper, steel
	Southern Resources	Charlotte, NC	704-342-1696	metal & plastic recycling service
	Umicore Marketing Services - USA	Raleigh, NC	919-874-7173	batteries, precious metals, electronic scraps, metal powders, oxides & chemicals, automotive catalysts, thin film products, zinc alloys & technical materials (includes automotive, aerospace, agriculture, food packaging, mining & communication electronics)
	Waste Industries, Inc.	Supply, NC	910-754-2979	glass, metal, paper, plastic
	Waste Management,	Gastonia, NC	888-964-9730	glass, metal, paper, plastic & rubber

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	Inc.			recycling service
Wood/Paper	Asheboro Recycling	Asheboro, NC	800-948-1280	scrap metal, electronics, aluminum, copper, steel, cardboard, paper, plastic, glass beverage containers
	Aulander Hardwood	Ahoskie, NC	252-345-0058	pallets & skids
	Ross Skid Products, Inc.	Marion, NC	828-652-7450	pallets
	Sonoco Products Co.	Gastonia, NC	704-864-5406	paper
	Universal-Moorecraft Reel & Recycling, Inc.	Tarboro, NC	252-823-2510	wooden cable reels & plywood spools
	Waste Industries, Inc.	Supply, NC	910-754-2979	glass, metal, paper, plastic
	Waste Management, Inc.	Gastonia, NC	888-964-9730	glass, metal, paper, plastic & rubber recycling service
	Weyerhaeuser Co.	Charlotte, NC	704-334-5222	paper
Other	CBP Resources	Gastonia, NC	704-868-4573	grease

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APPENDIX F: Grinding Vendor Contacts

The City of Concord will contract services for a grinding operation if deemed necessary due to large quantities of stumps, leaves, and limbs. Grinding operations will be performed at the temporary debris management sites by staff or licensed companies.

The City of Concord has identified the following companies:

Company	Location	Contact	Phone Number
Highway 49 Reprocessing Facility	2100 Speedrail Court, Harrisburg	Ron Gilkerson Scale House	704-895-0329 704-634-7946 704-455-1561
Cabarrus LCID Landfill	5011 Morehead Road, Concord	"Corky" McClure	704-455-3466
Hinson's Inc.	105 Ridge Road, Tryon, NC 28782		828-859-5836

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APPENDIX G: Pre-Qualified Contract Hauler Contacts

Company	Location	Contact	Phone Number
Richard E. Burrage Hauling & Grading	675 Knollcrest Drive, NE, Concord, NC 28025	Richard Burrage	704-782-6229
Overcash Gravel & Grading/Gold Express	1150 Shelton Road, NW, Concord, NC 28025		704-788-1603
Bonds Gravel & Grading	635 Pitts School Road, NW, Concord, NC 28027	Randy Bonds	704-782-5771

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APPENDIX H: Landfill Contacts

Permitted Active Municipal Solid Waste Landfills

Facility	Location	Contact	Phone Number
BFI-Charlotte Motor Speedway Landfill V	5105 Morehead Road, Concord	Brad Green John Marston	704-262-6002 704-262-6003

Permitted Active C & D Landfills

Facility	Location	Contact	Phone Number
Cabarrus County CDLF	4441 Irish Potato Road, Concord	Rick Payne	704-920-2951
Highway 49 C&D Landfill and Recycling	2100 Speedrail Court, Harrisburg	Ron Gilkerson Scale House	704-895-0329 704-634-7946 704-455-1561
Cabarrus LCID Landfill	5001 Morehead Road, Concord	"Corky" McClure	704-455-3466

Permitted Active Yard Waste Landfills

Facility	Location	Contact	Phone Number
Tarheel Bark Company	8829 Rocky River Road, Harrisburg	Brenda Chipman	704-455-6418
Highway 49 Reprocessing Facility	2100 Speedrail Court, Harrisburg	Ron Gilkerson	704-895-0329 704-634-7946

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APPENDIX I: Public Relations Media Contacts

Media	Name	Contact(s)	Phone Number(s)	E-mail Address(es)
Print	Independent Tribune	Jonathan Coleman, Editor	704-789-9105 704-782-3155	jcoleman@independenttribune.com
Print	Charlotte Observer – Cabarrus Neighbors	Scott Verner	704-786-2180	sverner@charlotteobserver.com
Print	Charlotte Business Journal	Ken Elkins	704-973-1100 Fax: 704-973-1102	kelkins@bizjournals.com
Television	WSOC Channel 9 (ABC)		Main: 704-338-9999 Newsroom: 704-335-4871	kara.lusk@wsox-tv.com assignment@wsoc-tv.com
Television	WBTV Channel 3 (CBS)		Main: 704-374-3500 Studio: 704-374-3698 1-800-522-1053	assignmentdesk@wbtv.com
Television	WCNC Channel 6 (NBC)		704-329-3636 704-329-3609 704-329-3602	assignmentdesk@wcnc.com
Television	WCCB Channel 18 (FOX)		704-570-4369	
Television	Time Warner Cable News 14	Phillis Shoemaker, Jennifer Moxley	704-973-5800 1-866-249-6397	phillis.shoemaker@news14.com jennifer.moxley@news14.com
Radio	WBT Charlotte		704-374-3833	
Radio	WEGO Concord		704-788-9346	

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APPENDIX J: Environmental Permits

U.S. Army Corps of Engineers

Nationwide Permits

- NWP 7. Outfall Structures and Associated Intake Structures
- NWP 8. Oil and Gas Structures
- NWP 12. Utility Line Activities
- NWP 13. Bank Stabilization
- NWP 18. Minor Discharges
- NWP 19. Minor Dredging
- NWP 20. Oil Spill Cleanup
- NWP 23. Approved Categorical Exclusions
- NWP 38. Cleanup of Hazardous and Toxic Waste
- NWP 41. Reshaping Existing Drainage Ditches
- NWP 43. Stormwater Management Facilities
- NWP 44. Mining Activities
- NWP 45. Repair of Uplands Damaged by Discrete Events
- NWP 46. Discharges in Ditches

Regional General Permits

- GP 198200030 Work in Waters of Lakes and Reservoirs **(Revised December 18, 2007.)**
- GP 199200297 Discharge of Material on State or Federal Owned Property

NCDENR

Emergency/Disaster Debris Site Approval and Activation

Sedimentation and Erosion Control

City of Concord

Open Burning Permit

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APPENDIX K: NCDENR Guide – Planning for a Natural Disaster

PREPARED?

Planning for a natural disaster

North Carolina Department of Environment and Natural Resources

Division of Waste Management

Solid Waste Section

Disasters strike anywhere, anytime. Is your community prepared? The Solid Waste Section of the North Carolina Division of Waste Management has developed this brochure to help you plan a disaster debris management program.

Being prepared helps divert significant amounts of valuable materials that can be recycled or reused and preserve landfill capacity.

Several first steps should be taken when establishing a debris management plan:

STEP 1: Designate department liaisons, form a debris team and name a manager. Debris teams staffed by decision makers are more efficient.

STEP 2: Evaluate the potential for specific disaster events. Have the debris team develop disaster specific checklists.

STEP 3: Study existing emergency plans and procedures to see how they impact your plan.

STEP 4: Create a contact list of local, state, and federal agencies involved in disaster debris management.

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DEBRIS TEAM TASKS

Establishing the debris team with public and private upper management staff is critical to an efficient, coordinated relationship in times of crisis. This team needs to establish guidelines for these tasks:

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□□rebuilding using recycled-content products □□building demolition program □□mutual aid

□□pre-disaster assessment □□public information program □□reimbursement

□□debris management programs coordination □□curbside collection program □□government

□□emergency and disaster declaration process □□household hazardous waste program

□□temporary storage sites □□contracts (short and/or long term)

□□Federal Public Assistance Program

□□□□□□□□□□□□□

Advance planning is the key to a successful disaster debris management program. When public health and safety are priorities, debris disposal and diversion programs are critical. Managing debris properly helps restore and maintain public health and safety.

STEP 1: **All Temporary Debris Staging Sites Must Be Pre-Approved By The DWM, SWS (sites are approved for a six month period only)**

STEP 2: Make diversion programs a priority.

STEP 3: Learn federal debris removal criteria and guidelines.

STEP 4: Develop a debris removal strategy.

STEP 5: Identify project scope.

STEP 6: Select debris management program(s).

STEP 7: Set program goals.

STEP 8: Identify labor needs.

STEP 9: Identify equipment needs.

STEP 10: Determine operation methods.

STEP 11: Adapt program length.

STEP 12: Review funding options.

STEP 13: Create public information program.

STEP 14: Develop monitoring and enforcement program

STEP 15: Identify program barriers.

STEP 16: Develop a contingency plan.

STEP 17: Pursue regional coordination.

STEP 18: Develop diversion incentives.

STEP 19: Create program accounting/tracking system.

STEP 20: Develop a training program.

STEP 21: Create records retention system and archives.

STEP 22: Prepare summary of activities and results.

STEP 23: SWS must conduct a final closure inspection.

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Planning is only effective if written guidelines are in place. This allows a systematic, comprehensive strategy. A central notebook with detailed information should be developed and updated annually. Here are some checklists to consider including in a notebook:

- Contact lists of executive and emergency management staff with home and office numbers. Update frequently and keep confidential.
- Equipment and supply listings. Include a brief description of type of equipment, amount of available supplies, and locations of both.
- Field and regional office/facility locations. Include maps, personnel, contact data and a list of available equipment and supplies for each location.
- Lists of private sector supplies and equipment that can supplement or substitute for agency resources.
- Media lists with fill-in-the-blank press releases and background materials for a variety of crises. Include television, radio, print, media, and wire services.
- Maps, charts, and diagrams of major transportation corridors and alternative routes. Emergency vehicles and debris removal teams need fast access during emergencies.

CONTRACTS

Evaluating and awarding contracts to remove and process debris takes time you don't have in a crisis. Create sample contracts that invite bids and request services now, to reduce response time in the future. The contracts vary per emergency. Here are several options:

CONTRACT TYPE	USE WHEN
Time and Material	Short-term Contractor paid by time spent Services for first 70 hours Used immediately after a disaster for emergency life saving activities and debris clearance

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Unit Price	Long-term Payment based on construction units Prices and scope of work can be increased/decreased Use beyond initial 70 hours of recovery Use when scope of work is undefined and can be quantified by actual field measures (e.g. recycle 10 tons concrete, 7 trees, etc.)
Lump Sum	Long-term Total contract price by one-item bid Use beyond initial 100 hours of recovery Use when scope of work is clearly defined and areas of work specifically quantified (e.g. demolish and recycle 1 structure for $10,000)

SAMPLE CONTRACT LANGUAGE

Example 1: City of XYZ cleanup contract.

Notice Inviting Bids

In response to the tornado of September 16, 1999, the City of XYZ has stockpiled disaster related debris at two designated sites. The North Carolina Solid Waste Management Act (G.S. 130A-309.04(c)) requires that the City of XYZ take steps to reduce the amount of waste going to landfills. Consequently, the stockpiled materials shall be diverted from landfills to the greatest extent possible.

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Contractor Service Requirements

- Contractor should transport recovered material to a permitted resource recovery facility within a 40-mile radius from sites.
- Contractor shall provide all necessary equipment, materials and labor necessary to remove and recover, to the extent possible, all stockpiled disaster related debris at the sites.
- Contractor shall haul all material that is non-recoverable to a state-permitted sanitary landfill for disposal.
- Contractor shall provide the City of XYZ with documentation of the amount and type of material removed from the sites.
- Recover' means to utilize materials which can be used as raw materials in the manufacture of new products, or as values which can be converted into a fuel or energy source. 'Recover' may include reuse, recycling, waste-to-energy, composting, and/or other components.

Example 2: City of ABC, master contract, 1999 Hurricane Sam.

The City let a master contract for the removal, disposal, and recycling of debris. Bid specifications for the contractors to remove the debris stated that the contractor is responsible for removal and transportation of cut trees to proper recycling or recovery facilities and that the contractor must segregate metals, concrete, and other recyclables from non-recyclable debris at the site of generation. Additionally, the City provided contractors with the names of Triangle area construction and demolition waste recyclers, and required contractors to provide weekly load verification reports to prove that the materials were entering a recycling facility.

Example 3: City of LMN, building demolition, spring 1998 flood

Project Requirements

- Recycle demolition materials to the greatest extent possible without delaying the project.
- Summarize and document the amounts and types of materials directly recycled and material removed from the site on the recycling log attached to this Contract. Documentation includes receipts of materials sold, etc.
- Demolition debris not directly recycled from the site must be hauled to the recycling facility (not landfill) located at (site). The recycling facility located at (address) charges $ xx/ton for inert material and $ xx/ton for mixed loads.
- Identify loads to (site) as "City Demolition Debris," state the demolition site address, and pay all allocated fees. A representative from the City Solid Waste Management Office will collect copies of weight tickets from the previous day's work at the demolition site on a regular basis. Copies of weight tickets must also be turned in to the Engineer at the completion of the project.
- Note: Contractor will be assessed a non-compliance fee of $ XXX per load for any documented mixed debris that is not delivered to the recycling center at (address). The non-compliance fee will be deducted from final payment.

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REFERENCES

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- California Integrated Waste Management Board- Disaster Plan, January 1997 (http://www.ciwmb.ca.gov)
- Public Assistance Debris Management Guide, FEMA, (FEMA 325) April 1999

For Federal Regulations refer to:

- The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288 Amended. This act summarizes the process and procedures for declaration, response, and recovery during federally declared disasters.
- Code of Federal Regulations Title 44 Part 13 - Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments. These regulations describe the administrative procedures and requirements for subgrantees receiving federal funding and awarding contracts for disaster-related repairs. Available at http://www.fema.gov/library/stafact.htm
- Code of Federal Regulations Title 44 Part 206-Federal Disaster Assistance for Disasters Declared on or after November 23, 1988. This regulation describes rules and requirements for Public Assistance Project Administration, applicant and work eligibility, and hazard mitigation.
- FEMA State and Local Guide (SLG) 101: Guide for All-Hazard Emergency Operations Planning (September 1996). Available at http://www.fema.gov/pte.gaheop.htm

For technical assistance or information on North Carolina guidelines contact:

N C Department of Environment and Natural Resources

1601 Mail Service Center

Raleigh, NC 27699-1601

(919) 733-4984

http://www.enr.state.nc.us

Division of Waste Management

Solid Waste Section

1646 Mail Service Center

Raleigh, NC 27699-1646

(919) 508-8400 (919) 733-4810 fax

http://wastenotnc.org

Department of Pollution Prevention

And Environmental Assistance

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1639 Mail Service Center

Raleigh, NC 27699-1639

(919) 715-6500 (919) 715-6794 fax

http://www.p2pays.org

August 2006

http://wastenot.enr.state.nc.us/swhome/Debris/DisasterBrochure.pdf

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APPENDIX L: NCDENR Guide – Emergency/Disaster Debris Site Approval-Activation Process Flow

Site Selection

County contacts specialist as part of program planning and related to disaster

Specialist works with County in selecting suitable sites

Specialist submits completed Site Selection form to Central Office

Central Office uses form to complete approval for the site by having Natural Heritage Program (NHP) and State Historic Preservation Office (SHPO) assess the site for sensitive characteristics

Negative response received from either NHP or SHPO	Positive response received from NHP and SHPO
Specialist contacted by Central Office and informed of issues	Site added to database in Central Office and given ID number[1]
Specialist informs County of issues	Approved Site Selection Form with ID number given to county for future use
New sites selected	

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Activation (post-disaster)

Site Activation form filed with Central Office

Site posted on web for public access

Specialist informs County they have a 6 month window to utilize the site

County utilizes the site

Deactivation

Site restored after use and inspected by Specialist. Deactivation form sent to Central Office

Site remains in database for future activation, unless site conditions change

Footnotes:

1. ID number may be required for FEMA reimbursement.

Revised 11/06

http://wastenot.enr.state.nc.us/swhome/Debris/DebrisSiteFlow.pdf

DRAFT

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APPENDIX M: NCDENR Guide – Waste Staging/Storage Site Selection Evaluation Sheet

NCDENR

Division of Waste Management - Solid Waste Section

Emergency Site Selection Evaluation Sheet

Disaster Debris

Site Name: _____ Site Location: _____

Physical Address or Directions: _____

City: _____ County: _____

Primary Contact: _____ Telephone #: _____

Additional Contact: _____ Telephone #: _____

Approx. Size of Area to be used for Disaster Debris: _____ Acres GPS Coordinates (decimal degrees): _____ N _____ W

Intended Use of Site:

☐ Staging/Storage for Removal ☐ Staging/Storage for Chipping ☐ Staging/Storage for Burning

Please provide a brief description of planned operations:

Type of Waste:

☐ Vegetative Debris ☐ Demolition Debris

Comments: _____

Buffers Required *(the following must be clearly delineated with flagging, survey stakes, etc.):*

☐ 100 feet from property boundaries and on-site structures

☐ 100 feet from residences, private wells (vegetative debris only), and septic tank systems

☐ 100 feet from surface waters

☐ 250 feet from potable wells (demolition debris)

☐ 300 feet from grinding operations to residence and business properties, publicly owned roads or properties

Please attach a site plan and/or aerial photograph showing the boundaries and location or the proposed site.

Additional information can be found at http://www.wastenotnc.org/swhome/planning.asp

Revised 09/09

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DWM Use Only:			
Buffers have met DWM Requirements	☐ YES / ☐ NO		
Flood Plain or Flood Prone Areas			
Wetlands			
Erosion Control			
Access, Site Security			
Safety Issues - Power Lines, Traffic, etc.			
Coordination with the Division of Air Quality	☐ YES / ☐ NO / ☐ NA		
Buffers have met DAQ Requirements	☐ YES / ☐ NO		
Coordination with Land Quality Section	☐ YES / ☐ NO / ☐ NA		
Coordination with State Historic Preservation Office (SHPO)/Office of State Archaeology		☐ YES / ☐ NO	
Coordination with Natural Heritage Program (endangered species)		☐ YES / ☐ NO	
General Comments			
	Coordinates Verified	☐ YES / ☐ NO	
Solid Waste Section Representative		Date of Inspection	

Revised 09/09

http://wastenot.enr.state.nc.us/swhome/EmergencySiteSelectionForm.pdf

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APPENDIX N: NCDENR Guide – Vegetative/Land Clearing Debris

The Solid Waste Regional staff shall be contacted to approve selected temporary sites for debris storage, staging and processing.

These guidelines apply only to sites for staging or burning vegetative storm debris (yard waste, trees, limbs, stumps, branches, and untreated or unpainted wood). Arrangements should be made to screen out unsuitable materials. The two methods of managing vegetative and land clearing storm debris is "chipping/grinding" for use in landscape mulch, compost preparation, and industrial boiler fuel or using an "air curtain burner (ACB)", with the resulting ash being land applied as a liming agent or incorporated into a finished compost product, as needed.

Environmental assessments of the temporary debris staging site should be conducted prior to beginning and after completion of the waste staging and processing operations. The assessments should include the collection of soil and water samples for chemical analysis. Contact the Solid Waste Section Environmental Senior Specialist in your area for a sample parameter list. Any contaminant spills or releases should be reported immediately to the Solid Waste Section Environmental Senior Specialist in your area.

CHIPPING/GRINDING SITES

Grinding wood debris for use as mulch, compost bulking agent, or industrial boiler fuel is encouraged ***if feasible*** as a method of management. To produce a wood chip that is suitable for mulch or fuel, ***chip size and absence of contaminants are critical***. Debris must be separated prior to grinding, and only tree waste and untreated and unpainted lumber shall be included in the chipping.

Locating sites for chipping/grinding of vegetative and land clearing debris can be accomplished by contacting the Regional Solid Waste Section staff for evaluating potential sites and to revisit sites at future dates to see if site conditions have changed or if the surrounding areas have changed significantly to alter the use of the site. The following guidelines are presented in locating a site for "chipping/grinding" and are considered "minimum standards" for selecting a site for use.

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1. Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map for the location in your county to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected.

2. Storage areas for incoming debris and processed material should be at a minimum 100 feet from all surface waters of the state. "Waters of the state" includes but is not limited to small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds, wetlands, etc.

3. Storage areas for incoming debris and processed material shall be at least 100 feet from the site property boundaries and on-site buildings/structures. Management of processed material shall be in accordance with "GUIDELINES FOR REDUCING THE POTENTIAL FOR SPONTANEOUS COMBUSTION IN COMPOST/MULCH PILES".

4. Storage areas for incoming debris shall be located at least 100 feet from residential dwellings, commercial or public structures, potable water supply wells, and septic tanks with leach fields.

5. Sites that have identified wetlands should be avoided, if possible. If wetlands exist or wetland features appear at a potential site, verification by the local Corps of Engineers office or Division of Water Quality Regional Office will be necessary to delineate areas of concern. Once areas are delineated, the areas shall be flagged and a 100-foot buffer shall be maintained for all activities on-going at the site.

6. The Division of Land Resources, Land Quality Section should be contacted for assistance on good erosion control measures and permitting guidance.

7. Dust control measures shall be implemented when necessary to prevent dust from moving off-site or causing visibility problems.

8. Sites bisected by overhead power transmission lines need careful consideration due to large dump body trucks/trailers used to haul debris. All underground utilities need to be identified due to the potential for site disturbance by truck/equipment traffic and possible site grading.

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9. Sites shall have an attendant(s) during operating hours to minimize the acceptance of unapproved materials and to provide directions to haulers and private citizens bringing in debris.

10. The operator shall manage the temporary debris management site to minimize the risk of fire. Any occurrence of fire, excluding authorized controlled burning, shall be reported within 24 hours to the Solid Waste Section Environmental Senior Specialist in your area.

11. Sites should be secure after operating hours to prevent unauthorized access to the site. Temporary measures to limit access to the site could be the use of trucks or equipment to block entry. Gates, cables, or swing pipes should be installed as soon as possible for permanent access control, if a site is to be used longer than two weeks. Sites should have adequate access that prohibits traffic from backing onto public right-of-ways or blocking primary and/or secondary roads to the site.

12. When possible, signs should be installed to inform haulers and the general public on types of waste accepted, hours of operation, and who to contact in case of an after hours emergency.

13. Grinding of clean wood waste such as pallets and segregated non-painted/non-treated dimensional lumber is allowed.

14. Final written approval is required from the Solid Waste Section to consider any debris management site to be closed. Closure of staging and processing sites shall be within six (6) months of receiving waste. If site operations will be necessary beyond this time frame, permitting of the site by the Solid Waste Section may be required. If conditions at the site become injurious to public health and the environment, then the site shall be closed until conditions are corrected or permanently closed. Closure of sites shall be in accordance with "DISASTER DEBRIS CLEAN UP GUIDELINES, CLOSURE AND RESTORATION OF TEMPORARY DEBRIS MANAGEMENT SITES".

15. Contact the Department of Pollution Prevention and Environmental Assistance, at 919-715-6500, for a list of contractors/suppliers of tub grinders and for a list of outlets for mulch/wood chips to be used as a boiler fuel.

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AIR CURTAIN BURNER SITES

1. Locating sites that are intended for air curtain burning (ACB) operations is a coordinated effort between the Solid Waste Section and Division of Air Quality regional office staff for evaluating the surrounding areas and to reevaluate potential sites used in the past. The following guidelines are presented for selecting an ACB site and operational requirements once a site is in use:
2. Contact the local fire marshall or fire department for input into site selection in order to minimize the potential for fire hazards, other potential problems related to fire fighting that could be presented by the location of the site, and to ensure that adequate fire protection resources area available in the event of an emergency.
3. The requirements for ACB device(s), in accordance with Air Quality rules, 15A NCAC 2D .1900 to .1906, require the following buffers: a minimum of 500 feet from the ACB device to homes, dwellings and other structures and 250 feet from roadways. Contact the Regional office of Air Quality for updates or changes to their requirements.
4. Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map for the location in your county to verify these areas. Due to heavy rains associated with natural disasters and saturated conditions that result, flooding may occur more frequently than normally expected. If ACB pit devices are utilized, a minimum two-foot separation to the seasonal high water table is recommended. A larger buffer to the seasonal high water table may be necessary due to on-site soil conditions and topography.
5. Storage areas for incoming debris should be at a minimum 100 feet from all surface waters of the state. "Waters of the state" includes but is not limited to small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds, wetlands, etc.
6. Storage areas for incoming debris shall be located at least 100 feet from property boundaries and on-site buildings/structures.
7. Air Curtain Burners in use should be located at least 200 feet from on-site storage areas for incoming debris, on-site dwellings and other structures, potable water supply wells, and septic tanks and leaching fields.
8. Only untreated and unpainted lumber and tree debris may be burned

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9. Wood ash stored on-site shall be located at least 200 feet from storage areas for incoming debris, processed mulch or tub grinders (if a grinding site and ACB site are located on the same property). Wood ash shall be wetted prior to removal from the ACB device or earth pit and placed in storage. If the wood ash is to be stored prior to removal from the site, then rewetting may be necessary to minimize airborne emissions.
10. Wood ash to be land applied on site or off site shall be managed in accordance with "GUIDELINES FOR THE LAND APPLICATION OF WOOD ASH FROM STORM DEBRIS BURN SITES" and it shall be incorporated into the soil by the end of the operational day or sooner if the wood ash becomes dry and airborne.
11. Sites that have identified wetlands should be avoided, if possible. If wetlands exist or wetland features appear at a potential site, verification by the local Corps of Engineers office or Division of Water Quality Regional Office will be necessary to delineate areas of concern. Once areas are delineated, the areas shall be flagged, and a 100-foot buffer shall be maintained for all activities on-going at the site.
12. The Division of Land Resources, Land Quality Section should be contacted for assistance on good erosion control measures and permitting guidance.
13. Sites bisected by overhead power transmission lines need careful consideration due to large dump body trucks/trailers used to haul debris and the intense heat generated by the ACB device. Underground utilities need to be identified prior to digging pits for using the ACB device.
14. Provisions should be made to prevent unauthorized access to facilities when not open for use. As a temporary measure, access can be secured by blocking drives or entrances with trucks or other equipment when the facilities are closed. Gates, cables, or other more standard types of access control should be installed as soon as possible.
15. When possible, post signs with operating hours and information about what types of clean up waste may be accepted. Also include information as to whether only commercial haulers or the general public may deposit waste.
16. Closure of air curtain burner sites shall be within six (6) months of receiving waste. If site operations will be necessary beyond this time frame, permitting of the site by the Solid Waste Section may be required. If conditions at the site become injurious to public health and the environment, then the site shall be closed until conditions

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are corrected or permanently closed. Closure of sites shall be in accordance with "DISASTER DEBRIS CLEAN UP GUIDELINES, CLOSURE AND RESTORATION OF TEMPORARY DEBRIS MANAGEMENT SITES".

Sites shall be managed and monitored in accordance with the Solid Waste Management Rules and to prevent threats to the environment or public health.

Applicable Regulations – Vegtative/Land Clearing Waste

Processing - N.C. Solid Waste Management Rules Sections .0300-.0302, .0560-.0566
Composting - N.C. Solid Waste Management Rules Sections .1400-.1409
Landfilling - N.C. Solid Waste Management Rules Sections .0560-.0566
Open Burning - N.C. Air Quality Rules Sections .1900-.1906

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APPENDIX O: NCDENR Guide – Construction and Demolition Debris

When local governments are preparing temporary facilities for handling debris resulting from the cleanup efforts due to hurricane damage, the following guidelines should be considered when establishing staging/transfer sites for Construction & Demolition (C&D) and C&D recycling treatment and processing facilities. The Solid Waste Section Regional staff should be contacted to assist in selecting an appropriate site(s) for staging/transfer areas.

These guidelines apply only to sites for staging/transferring C&D storm debris (roof shingles/roofing materials, carpet, insulation, wallboard, treated and painted lumber, etc.). Arrangements should be made to screen out unsuitable materials, such as household garbage, white goods, asbestos containing materials (ACM's), and household hazardous waste.

Environmental assessments of the temporary debris staging site should be conducted prior to beginning and after completion of the waste staging and processing operations. The assessments should include the collection of soil and water samples for chemical analysis. Contact the Solid Waste Section Environmental Senior Specialist in your area for a sample parameter list. Any contaminant spills or releases should be reported immediately to the Solid Waste Section Environmental Senior Specialist in your area.

STAGING/TRANSFERRING SITES

Locating sites for staging/transferring C&D waste can be accomplished by contacting the Regional Solid Waste Section staff for evaluating potential sites and to revisit sites used in the past to see if site conditions have changed or if the surrounding areas have changed significantly to alter the use of the site. The following guidelines are presented in locating a site for "staging/transferring" and are considered "minimum standards" for selecting a site for use:

1. Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map for the location in your county to verify these areas. Due to heavy rains associated with hurricanes and saturated conditions that result, flooding may occur more frequently than normally expected.

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2. Hauler unloading areas for incoming C&D debris material should be at a minimum 100 feet from all surface waters of the state. "Waters of the state" includes but is not limited to small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds, wetlands, etc.
3. Storage areas for incoming C&D debris shall be at least 100 feet from the site property boundaries, on-site buildings/structures, and septic tanks with leach fields or at least 250 feet from off-site residential dwellings, commercial or public structures, and potable water supply wells, whichever is greater.
4. Materials separated from incoming C&D debris (white goods, scrap metal, etc.) shall be at least 100 feet from site property lines. Other non-transferable C&D wastes (household garbage, larger containers of liquid, household hazardous waste shall be placed in containers and transported to the appropriate facilities as soon as possible.
5. Sites that have identified wetlands should be avoided, if possible. If wetlands exist or wetland features appear at a potential site; verification by the local Corps of Engineers office or Division of Water Quality Regional Office will be necessary to delineate areas of concern. Once areas are delineated, the areas shall be flagged and a 100-foot buffer shall be maintained for all activities on-going at the site.
6. The Division of Land Resources, Land Quality Section, should be contacted for assistance on good erosion control measures and permitting guidance.
7. Dust control measures shall be implemented when necessary to prevent dust from moving off-site or causing visibility problems.
8. Sites bisected by overhead power transmission lines need careful consideration due to large dump body trucks/trailers used to haul debris, and underground utilities need to be identified due to the potential for site disturbance by truck/equipment traffic and possible site grading.
9. Sites shall have an attendant(s) during operating hours to minimize the acceptance of unapproved materials and to provide directions to haulers and private citizens bringing in debris.
10. The operator shall manage the temporary debris management site to minimize the risk of fire. Any occurrence of fire, excluding authorized controlled burning, shall be reported within 24 hours to the Solid Waste Section Environmental Senior Specialist in your area.

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11. Sites should be secure after operating hours to prevent unauthorized access to the site. Temporary measures to limit access to the site could be the use of trucks or equipment to block entry. Gates, cables, or swing pipes should be installed as soon as possible for permanent access control, if a site is to be used longer than two weeks.
12. When possible, signs should be installed to inform haulers and the general public on types of waste accepted, hours of operation, and who to contact in case of after hours emergency.
13. Final written approval is required from the Solid Waste Section to consider any debris management site to be closed. Closure of processing/recycling sites shall be within six (6) months of receiving waste. If site operations will be necessary beyond this time frame, permitting of the site by the Solid Waste Section may be required. If conditions at the site become injurious to public health and the environment, then the site shall be closed until conditions are corrected or permanently closed. Closure of sites shall be in accordance with "DISASTER DEBRIS CLEAN UP GUIDELINES, CLOSURE AND RESTORATION OF TEMPORARY DEBRIS MANAGEMENT SITES".

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C&D TREATMENT & PROCESSING/RECYCLING SITES

Management of C&D debris and source separated materials to be recycled shall be in accordance with permit conditions and operational requirements of permitted C&D Processing/Recycling Facilities and the following additional conditions:

1. Contact the Health Hazards Control Branch for information on managing asbestos containing materials (ACM's) or materials that are considered regulated asbestos containing materials.
2. Contact the Division of Pollution Prevention and Environmental Assistance at 919-715-6500 for an up to date copy of "DIRECTORY OF MARKETS FOR RECYCLABLE MATERIALS" and a listing of suppliers/contractors with tub grinders, maulers, and other processing equipment for the recycling of C&D waste.
3. Sites should be located outside of identifiable or known floodplain and flood prone areas; consult the Flood Insurance Rate Map for the location in your county to verify these areas. Due to heavy rains associated with natural disasters and saturated conditions that result, flooding may occur more frequently than normally expected.
4. Storage areas for incoming debris should be at a minimum 100 feet from all surface waters of the state. "Waters of the state" includes but is not limited to small creeks, streams, watercourses, ditches that maintain seasonal groundwater levels, ponds, wetlands, etc..
5. Storage areas for incoming debris shall be located at least 100 feet from property boundaries and on-site buildings/structures.
6. Sites that have identified wetlands should be avoided, if possible. If wetlands exist or wetland features appear at a potential site, verification by the local Corps of Engineers office or Division of Water Quality Regional Office will be necessary to delineate areas of concern. Once areas are delineated, the areas shall be flagged and a 100-foot buffer shall be maintained for all activities on-going at the site.
7. Storage areas for incoming C&D debris shall be at least 100 feet from the site property boundaries, on-site buildings/structures, and septic tanks with leach fields

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or at least 250 feet from off-site residential dwellings, commercial or public structures, and potable water supply wells, whichever is greater.

8. The Division of Land Resources, Land Quality Section should be contacted for assistance on good erosion control measures and permitting guidance.
9. Sites bisected by overhead power transmission lines need careful consideration due to large dump body trucks/trailers used to haul debris and the intense heat generated by the ACB device. Underground utilities need to be identified prior to digging pits for using the ACB device.
10. Provisions should be made to prevent unauthorized access to facilities when not open for use. As a temporary measure, access can be secured by blocking drives or entrances with trucks or other equipment when the facilities are closed. Gates, cables, or other more standard types of access control should be installed as soon as possible.
11. When possible, post signs with operating hours and information about what types of clean up waste may be accepted. Also include information as to whether only commercial haulers or the general public may deposit waste.
12. Final written approval is required from the Solid Waste Section to consider any debris management site to be closed. Closure of processing/recycling sites shall be within one (1) year of receiving waste. If site operations will be necessary beyond this time frame, permitting of the site by the Solid Waste Section may be required. If conditions at the site become injurious to public health and the environment, then the site shall be closed until conditions are corrected or permanently closed. Closure of sites shall be in accordance with "DISASTER DEBRIS CLEANUP GUIDELINES, CLOSURE AND RESTORATION OF TEMPORARY DEBRIS MANAGEMENT SITES".
13. **Sites shall be managed and monitored in accordance with the Solid Waste Management Rules and to prevent threats to the environment or public health.**

Applicable Regulations – Construction and Demolition Waste

Processing - N.C. Solid Waste Management Rules Sections .0300-.0302, .0531-.0547
Landfilling - N.C. Solid Waste Management Rules Sections .0531-.0547

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APPENDIX P: NCDENR Guide – Household Hazardous Waste Management

When local governments are preparing temporary facilities for handling household hazardous waste (HHW) resulting from cleanup efforts due to disaster damage, the following guidelines should be considered.

The local government should choose an HHW contractor to set up a collection event. The contractor should be able to assist in selecting a site that is easily accessible, accommodates the contractor's equipment, and accommodates traffic. Centrally located events are usually set up at a park, fairgrounds, or local government facility parking lot. The local government may choose a milk-run type collection at sites across the county. In this case the HHW contractor collects HHW for a certain time period at one site and then moves on to the next. The Section will work with local government in every way possible to establish the type of collection that fits the particular situation.

In order to hold a collection event, the local government should contact the Solid Waste Section to obtain a temporary identification number. This number is required at all hazardous waste disposal and recycling facilities as a condition of waste acceptance. A form for requesting the identification number is attached. Keep in mind that contractors normally keep these forms on hand and, if requested, will obtain the number for the client. Please contact the Division of Waste Management, Solid Waste Section at (919) 508-8400 for a list of household hazardous waste collection contractors.

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APPENDIX Q: NCDENR Guide – White Goods Management

N. C. Department of the Environment and Natural Resources
Division of Waste Management
Solid Waste Section

Suggested Procedures for Large Scale Removal of White Goods from Disaster Affected Areas
February 2008

Description
This paper briefly discusses recommended procedures for the collection and management of large numbers of disposed appliances which would occur in the event of a hurricane, flood, tornado, or other large scale natural disaster in North Carolina.

Please note that the statutes regulating the management of white goods can be found in G.S. 130A-309.80 – 87.

Types of Appliances
On average each home will have four or five appliances for disposal. Some will have more. The most common will be refrigerators, washers, dryers, stoves and dish washing machines. Multiply this by the number of homes in a given area and one can estimate the numbers of appliances that may be involved. Many homes may have one or more room air conditioners. Other types include: hot water heaters, freezers, dehumidifiers.

Commercial facilities may seek to repair damaged restaurant equipment rather than dispose of them since these appliances tend to be more valuable than most than domestic appliances. That being said, it is likely that personnel may encounter commercial equipment. These may consist of refrigerators, stoves, ovens, table warmers, chillers, etc. A more comprehensive list is below.

Any metallic debris has recyclable potential and would decrease the amount of material needing to be landfilled.

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Defined as white goods in North Carolina

1. Vending machines (refrigerated, heated, non-refrigerated and non-heated types - does not include gumball and similar small dispensers).
2. Large floor-model oil, gas and wood-fired heaters and fireplace inserts (not small portable space heaters).
3. Trash compactors
4. Large floor-model humidifiers and dehumidifiers (not small plastic vaporizers).
5. Water treatment equipment (not small faucet-mounted or under-sink filtering devices).
6. Dish sanitizers.
7. Commercial fry cookers.
8. Drinking water coolers;
9. Freestanding ice makers;
10. Built-in stove surface units;
11. Built-in ovens;
12. Floor-model popcorn machines;
13. Hot food bar used to keep food hot;
14. Refrigerated soft ice cream dispensers;
15. Commercial refrigeration equipment manufactured and sold as self-contained unit; and
16. Steam tables used to keep food hot.

The major distinction comes to whether the appliance has chlorofluorocarbon refrigerants (CFC's) present as heat transfer material. The rest of this paper will primarily discuss procedures for removing CFCs from appliances.

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Types of Hazards in Disposed Appliances

Physical and Chemical

- Chlorofluorocarbon (CFCs) and hydrochlorofluorocarbon (HCFCs) refrigerants; various types, 5 most common.

  Inhalation and eye hazard.

- Highly chlorinated compressor oil.

  Inhalation, ingestion, and eye hazard

- Capacitors and ballasts containing Polychlorinated Biphenyls (PCBs); phased out but on older models.

  Ingestion, inhalation, and eye hazard.

- Mercury switches; also phased out but on older modals.

  Ingestion and inhalation hazard.

- Sulfur dioxide gas; phased out but on some older units.

  Inhalation hazard and eye hazard

- Ammonia gas; used in cold storage applications, boats, motor homes, and propane refrigerators.

  Inhalation and eye hazard.

- Desiccant filter dryers.

  Ingestion hazard

- Sharp or damaged metal edges that may cause punctures or lacerations.

  Possible tetanus exposure.

Biological

- Poisonous snakes and spiders.
- Stinging/biting insects- wasps, hornets, bees, ants, mosquitoes, centipedes.
- Rodents and other disease vectors.

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- Disease potential from putrefied food stuffs.

There are 5 commonly used refrigerants in domestic refrigeration equipment: R-12, most commonly used in refrigerators; R-22, found in freezers and air conditioners; R-114, originally used in refrigerators, but now mostly found in marine air conditioning; ammonia (NH3), commonly used in cold storage applications, boats, motor homes, and propane refrigerators; and sulfur dioxide (SO2), found in older refrigeration units. Of these, R-12 and R-114 are CFCs, R-22 is an HCFC, and NH3 and SO2 are exotic refrigerants, not regulated by the Clean Air Act.

In addition, HFC replacement refrigerants such as R-124, R-125, and 134a are now commonly used in new refrigerators, freezers, and air conditioners. 1

Personnel Protective Equipment Recommended and Training of Personnel

In November 14, 1994, the EPA began requiring certification of technicians involved in: maintaining or repairing appliances containing less than 5 pounds of refrigerant (Type I Certification); maintaining, repairing, or disposing of appliances containing greater than 5 pounds of refrigerant (Type II Certification); and maintaining, repairing, or disposing of low pressure appliances (Type III Certification). Although certification of technicians involved in maintaining or repairing automotive air conditioners has been required since August 13, 1992, the EPA does not require certification of individuals involved in the disposal of automotive air conditioners or small refrigerated appliances.

∗ **Please note, it is strongly recommended that personnel performing the recovery of refrigerants and disposal of refrigeration equipment complete an EPA approved certification program. The cost of training is small compared to the cost to public health, environmental damage and potential fines incurred.**

∗ It is also recommended that personnel employ the highest level of personal protective equipment necessary to guard against the various hazards mentioned above. Typically this would consist of full body and face protection and may even involve some level of respiratory protection.

SUGGESTED PROCEDURES

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Please note that enforcement action can be taken for the mismanagement of white goods and for not collecting CFC refrigerants. See **130A-309.84. (Civil penalties for improper disposal)** for more details.

More than likely, residents returning to emergency affected areas will have brought their damaged appliances to the curb for pick-up and disposal. It is not recommended that technicians depend on the advice of homeowners as to the presence of CFCs in appliances. In most cases, homeowners lack the expertise to determine if a damaged or disposed appliance contains CFCs.

Non-CFC bearing appliances may be initially collected, as these, in most cases, do not require additional special handling. The following procedures refer to CFC bearing appliances.

- Before collection is to begins, personnel certified in refrigerant collection should patrol neighborhoods and areas scheduled for pick-up looking for refrigerators, freezers, and similar CFC bearing appliances. The use of a **gas identifier** is highly recommended as the placard installed by the manufacturer may be damaged or removed, or a previous technician may have added additional dissimilar refrigerant gas.
- It is important to remember that for refrigerant gasses to be recyclable they must be kept as pure as possible. Typically, less than 90% purity will render the gas non-marketable. *If possible, several different cylinders and machines dedicated for each gas type (R-12,R-122,R-134a) plus a trash cylinder should be available.* If this is not possible then, keep in mind, that collected CFC's will need to be disposed of at a hazardous waste incinerator which may be more expensive than paying additional personnel for collection activities.
- After the appliance has been cleared of CFCs, it should be clearly marked as such. Individual extraction machines are preferred over one machine that can be used to extract several types of gasses. If one machine is inoperable it can be easily replaced whereas the single multi-gas machine may be completely out of service. Also, several machines each dedicated to a gas can be used simultaneously.
- Collection of CFCs before pick-up is to begin will allow pick-up personnel to quickly collect these appliances with less regard to care. If refrigerant gasses are not removed prior to pick-up then personnel risk damaging these appliances in a number of ways such as:
    - using exposed refrigerant lines to move or lift an appliance;
    - dropping or dragging appliances on the ground;
    - appliances shifting in a transport truck;
    - catching the blade of a two wheel hand truck on refrigerant lines;
    - an unsecured compressor motor tearing loose refrigerant lines during rough handling, stacking of refrigeration units in a collection container;
    - loading units in a compactor truck;
    - "defrosting" the-freezer with a knife or screwdriver;
    - a technician assuming a refrigeration unit is already vented and cutting refrigerant lines;
    - use of a knuckleboom loader truck which could damage refrigerant lines.
- Many refrigerators and freezers will still have food stuffs remaining. It is advisable that personnel request that residents remove food stuffs before collection. If this is not possible then refrigerators with foodstuffs remaining in them will need to be cleaned at

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the collection site or central facility. Have personnel or residents clearly mark the unit with a large "F" to indicate that foods stuffs remain in the unit and duct tape the unit closed to prevent fluids and decayed material from accidentally escaping the unit.

- After the appliances are collected they may be brought to a central facility or site. Bare in mind, those appliances with compressors can still have compressor oils and other potentially harmful substances still in them. If further processing is planned then these types of appliances should be separated from other types.
- Many appliances will have putrefied food stuffs remaining, these should be cleaned out using a hoe or similar implement and dumped into a bin, bucket or similar receptacle. Decayed material should then be landfilled. The unit should then be clearly marked in some fashion, identifying it as being cleaned and vented.
- Appliances may be stockpiled and loaded en-masse with the use of heavy equipment into an open top semi-trailer and taken to a recycler. Pre-crushing is an option that will maximize transport vehicle space. Remember that appliances with compressors may still have oils and other fluids still present if they have not been previously removed. Crushing of these appliances with either a pre-crusher or use of heavy equipment will allow these fluids to possibly contaminate the area or endanger personnel.
- Finally, authorities should be resourceful and innovative in developing strategies and methods that adapt to the availability of resources and financial and time restraints. White goods have a positive value and it is quite probable that white goods collection activities may pay for themselves. The focus should be on protecting personnel from the hazards of white goods management, protecting the public health and the environment.

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The Solid Waste Section's White Goods Program

The NC Division of Waste Management's Solid Waste Section has a state wide white goods program. This program was initiated by the NC State legislature to fund and support individual county's in the collection and management of white goods. The primary purpose is to prevent the unlawful disposal of white goods and the illegal venting of refrigerant gasses. To this effect, the legislature set up the white goods fund to make grants to North Carolina counties to buy equipment and infrastructure and to reimburse counties for operational expenses directly related to white goods management.

Counties stricken by disaster and in need of funds to collect and dispose of white goods may apply to the Solid Waste Section for clean-up grants or for grants to help pay for operational expenses incurred during clean-up activities. As mentioned, white goods have a net positive value as scrap metal and requests made to the Solid Waste Section for additional funds will take into account the present market value of scrap metal. Grant amounts made to individual counties for collection and transport costs for clean-up activities will be based upon the percentage of white goods collected as determined by visual inspection and/or weight tickets. Photos of white goods collection sites and invoices for equipment and services and the input by Regional Waste Management Specialists will also be required.

For more details, visit our website at:

www.wastenotnc.org and look for the white goods links, or

call Bill Patrakis at 336-771-5091.

References

1. Small-Scale Technologies to Remove and Manage Refrigerants and Compressors from Discarded Appliances, Washington State Department of Ecology, Publication # 94-171

2. North Carolina Department of Revenue, Sales and Use Technical Bulletin, Section 29

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APPENDIX R: FEMA Policy – Debris Management Brochure 329

Eligibility
Public Assistance funds are available to eligible applicants for debris clearance, removal and disposal operations. Eligible applicants include State and local governments, Indian tribes, and certain private nonprofit organizations. In order to be eligible for FEMA funding, the debris removal work must:

- Be a direct result of a Presidentially declared disaster;
- Occur within the designated disaster area; and
- Be the responsibility of the applicant at the time of the disaster.

In addition, at least one of the following must apply:

- Removal eliminates immediate threats to human lives, public health and safety;
- Removal eliminates immediate threats of significant damage to improved public and private property; and/or
- Removal ensures economic recovery of the affected areas to the benefit of the community-at-large.

Debris located on public property and rights-of-way is eligible. Eligible debris can include downed trees, sand, building wreckage, and damaged personal property.

Generally, debris removal from private property is not eligible under the Public Assistance Program; however, FEMA may approve debris removal from private property on a case-by-case basis when extenuating circumstances exist. Applicants should contact their State Emergency Management officials prior to debris removal for specific eligibility requirements. Debris that threatens private homes may be eligible under FEMA's Individual Assistance Program.

Debris Management Planning
A comprehensive debris management plan is a critical element in efficient recovery efforts when a disaster strikes. Debris management planning activities include the following:

- Identify the responsible debris operations managers within your organization.
- Contact your State Emergency Management officials for eligibility and contracting guidance.
- Procure standby debris removal and disposal contracts or pre-qualify debris removal contracts prior to the disaster. (Costs must be reasonable)
- Identify debris removal monitoring resources and staffing.
- Identify potential types and quantities of debris.
- Identify waste disposal methods (i.e., incineration, chipping, recycling, etc.).

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- Identify and prepare debris storage and reduction sites:
    - Consider the proximity and affect on residential areas, educational facilities, and environmental features.
    - Collect baseline data. Video/photograph site. Take soil and ground water samples. Investigate potential historic or archaeological issues.
    - Determine site layout for storage, burning, grinding and other operations.
    - Provide buffer zones between areas within the site.
    - Provide ingress and egress to the site such that trucks do not delay normal traffic.
    - Construct inspection towers at ingress and egress locations.
    - Establish an environmental remediation and site restoration plan.
- Obtain appropriate Federal, State and local permits.
- Implement a regular public information campaign that instructs the general public on guidelines for dealing with debris.
- Ensure that costs are thoroughly documented and records are retained appropriately.

Debris-Related Contracts

Applicants may use their own forces or contract for debris removal and disposal work. When utilizing contractors, applicants should follow proper contracting procedures to ensure maximum reimbursement for eligible work.

The following important points should be considered during the acquisition and oversight of debris removal and disposal contracts:

- All contracts should have a well-defined scope of work, specified costs, basis of payment, and performance schedule.
- Contracts must be competitively bid.
- Long-term contracts should be written on a unit price basis.
- Complete and accurate records of contractor activities should be kept by the applicant and are essential for receipt of federal funds.
- Contractor activities must be monitored by trained and knowledgeable applicant representatives.
- Time and materials (T&M) contracts are typically only allowed for the first 70 hours of response. After that point, the contracts must be competitively re-bid on a unit price basis.
- Unit price contracts are based on weights or volume of debris hauled and should be used when the scope of work is not well defined.
- Lump sum contracts are allowed but should be used only when the scope of work is clearly defined. An example of clearly defined work would be removal and disposal of an existing wood chip pile at a processing site.
- Cost plus percentage of cost contracts are not allowed.
- FEMA does not certify or approve contracts or contractors.

Debris Removal Monitoring

Monitoring of debris removal and disposal contractor activities is a critical component in successful debris operations and in the justification and documentation of any application for

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FEMA Public Assistance funding. A successful debris monitoring plan will include the following activities:

- The applicant should deploy trained debris monitors to observe and document contractor activities. At a minimum, these monitors should be stationed at all pick-up and disposal sites.
    - Applicants may use their own full-time workforce or hire temporary workers as monitors;
    - Applicants may contract with local firms to provide debris monitoring services;
    - Applicants may request FEMA/State staff assistance for debris monitoring activities.
- For unit price contracts, applicants should use load tickets to document weights and volumes of contractor vehicles. These load tickets should be treated as accounting forms and represent critical documentation when applying for FEMA funds.
    - When unit price payments are based on weight, provisions should be made for weighing trucks at the disposal site. Periodically confirm empty weight of trucks.
    - When unit price payments are based on volume, monitors should verify truck capacities and inspect trucks for proper loading and compaction.
- For T&M contracts, applicants should document equipment and manpower time and ensure efficiency in usage. There is no reimbursement by FEMA for "down time" of equipment or manpower.
- Monitors should be on the look out for inappropriate contractor activities including: improper loading of trucks; picking up ineligible debris; posting trucks with inaccurate load capacities; etc.

Frequently Asked Questions

Q: How does my community get FEMA funding for debris removal?
A: Local governments and other eligible applicants should contact their State's Emergency Management officials to discuss obtaining, completing and submitting a Request for Public Assistance form. Upon receipt of this request form from the State, FEMA will assign a Public Assistance Coordinator (PAC) to work with each applicant.

Q: Are there specialists that can help my community manage its debris issues?
A: Yes. FEMA has debris specialists that can be mobilized to a declared disaster location to assist applicants with debris management. Contact your State or Tribal Emergency Management Office for assistance.

Q: What kind of debris training is available?
A: FEMA offers an Emergency Management Institute (EMI) Independent Study course, IS 632-Introduction to Debris Operations, which is a CD-ROM computer based training course. Applicants can enroll at www.training.fema.gov/EMIWeb/enroll.htm or by calling the Independent Study office at 301- 447-1200. FEMA also provides classroom instruction in debris management for State, Tribal and Local officials at EMI in Emmitsburg, MD.

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Q: Are the costs of contract monitoring eligible for FEMA funding?
A: Yes. Overtime incurred by applicant forces, reasonable costs for contracted debris monitoring services, and costs for temporary monitors hired by the applicant, are eligible for FEMA reimbursement.

Q: If I have an existing T&M contract in place, can I convert it to unit price after 70 hours without rebidding?
A: No. The T&M contract must be competitively rebid on a unit price basis. However, if a few hours of work remain, an extension may be provided in order to complete the work.

Q: Does FEMA pay for debris on privately owned land?
A: Generally no, however, disaster-related debris from private property brought to the curbside for public pickup is usually covered.

Q: Does FEMA have to approve my debris removal and disposal contracts?
A: No. FEMA does not approve contracts; however, FEMA can provide technical assistance to applicants regarding proper contracting procedures. Prior to contract execution, it is recommended that you provide a copy of your contract to the State Emergency Management Office and FEMA.

Q: Is debris generated by post-disaster reconstruction activities eligible?
A: No. This type of debris is the owner's responsibility and generally covered by insurance.

Additional Resource Material

The following reference guides can be downloaded from FEMA's website or ordered from the FEMA Publications Office at 800-480-2520:

- FEMA 321 - Public Assistance Policy Digest
- FEMA 322 - Public Assistance Guide
- FEMA 323 - Applicant Handbook
- FEMA 325 - Public Assistance Debris Management Guide

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APPENDIX S: FEMA Policy – Demolition of Private Structures

Disaster Assistance Policy 9523.4

I. **TITLE:** Demolition of Private Structures

II. **DATE:** July 18, 2007

III. **PURPOSE:** This policy provides guidance in determining the eligibility of demolition of private structures under the Federal Emergency Management Agency's (FEMA) Public Assistance Program.

IV. **SCOPE AND AUDIENCE:** The policy is applicable to all major disasters declared on or after the date of publication of this policy. It is intended for FEMA personnel involved in the administration of the Public Assistance Program.

V. **AUTHORITY:** Section 403(a)(3)(E) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5170b, 42 U.S.C. 5172, 44 CFR 206.225, and 44 CFR 206.226.

VI. **BACKGROUND:**

A. Section 403 of the Stafford Act, 42 U.S.C. 5170b, provides FEMA authority to provide assistance essential to meeting immediate threats to life and property resulting from a major disaster. Specifically, Section 403(a)(3)(E) provides FEMA authority to fund the demolition of unsafe structures which endanger the public on public and private property (44 CFR 206.225). Eligible Public Assistance applicants may be eligible for Public Assistance grant funding under Section 403 of the Stafford Act under the conditions of this policy.

B. The demolition of unsafe structures owned by eligible public and private nonprofit (PNP) applicants may be eligible for Public Assistance grant funding under Section 406 of the Stafford Act, which funds the repair, restoration, reconstruction, or replacement of eligible facilities (44 CFR 206.226).

VII. **POLICY:**

A. **Definitions.**

1. Demolition: The act or process of reducing a structure, as defined by State or local code, to a collapsed state.

2. Demolition debris: Materials including building materials and personal effects that are deposited as a result of the demolition process.

3. Legal responsibility: A statute, formally adopted local code, or ordinance that gives local government officials the responsibility to enter private property to demolish unsafe structures or to perform work to remove an immediate threat (44 CFR 206.223(a)(3), 44 CFR 206.221(c), and 44 CFR 206.225(a)(3)).

4. Unsafe structure: A structure found to be dangerous to the life, health or safety of the public because such structure is so damaged or structurally unsafe as a direct result of the declared disaster that partial or complete collapse is imminent.

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B. **Duplication of Benefits** (44 CFR 206.191). FEMA is prohibited by Section 312 of the Stafford Act from approving funds for work that is covered by any other source of funding. Therefore, State and local governments must take reasonable steps to prevent such an occurrence, and verify that insurance coverage or any other source of funding does not exist for the demolition of private structures.

1. When demolition of private structures is covered by an insurance policy, the insurance proceeds must be used as the first source of funding. Public Assistance grant funding may be used to pay for the remainder of the demolition costs.

2. If it is discovered that a duplication of benefits from any other source of funding has occurred, FEMA will de-obligate funds from the Grantee in the amount that such assistance duplicates funding the property owners received from other sources.

C. **Eligibility of Demolition of Private Structures.**

1. Demolition of privately owned structures and subsequent removal of demolition debris may be eligible for Public Assistance grant funding under Section 403 of the Stafford Act when the following conditions are met:

a. The structures were damaged and made unsafe by the declared disaster, and are located in the area of the declared disaster (44 CFR 206.223(a)(1) and (2)).

b. The State or local government applicant certifies that the structures are determined to be unsafe and pose an immediate threat to the public (44 CFR 206.225(a)). The Public Assistance applicant provides a detailed explanation documenting its legal responsibility to enter private property to demolish an unsafe structure, and confirms that all legal processes and permission requirements (e.g., rights-of-entry) for such action have been satisfied. The Public Assistance Group Supervisor must concur that the demolition of unsafe structures and removal of demolition debris are in the public interest. FEMA will consider alternative measures to eliminate threats to life, public health, and safety posed by disaster-damaged unsafe structures, including fencing off unsafe structures and restricting public access, when evaluating requests for demolition.

i. The eligible applicant must demonstrate the legal basis as established by law, ordinance, or code upon which it exercised or intends to exercise its responsibility following a major disaster to demolish unsafe private structures (44 CFR 206.223(a)(3)). Codes and ordinances must be germane to the structural condition representing an immediate threat to life, public health, and safety, and not merely define the local government's uniform level of services.

States and local governments ordinarily rely on condemnation and/or nuisance abatement authorities to obtain legal responsibility prior to the commencement of demolition of private structures. There may be

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circumstances, however, where the State or local government determines that ordinary condemnation and/or nuisance abatement procedures are too time-consuming to address an immediate public health and safety threat. In such circumstances, applicants may not have to precisely follow their nuisance abatement procedures or other ordinances that would prevent the State or local government from taking emergency protective measures to protect public health and safety (44 CFR 206.225(a)).

ii. The applicant's legal responsibility to take action where there is an immediate threat to life, public health, and safety should be independent of any expectation, or request, that FEMA will reimburse costs incurred for demolition of private structures and the removal of demolition debris from private property. In addition, an applicant's legal responsibility is not established solely by an applicant obtaining signed rights-of-entry and hold harmless agreements from property owners.

c. The State or local government confirms that a legally authorized official has ordered the exercise of public emergency powers or other appropriate authority to enter onto private property in order to remove/reduce threats to life, public health, and safety threat via demolition of unsafe structures and removal of demolition debris (44 CFR 206.223).

d. The State or local government indemnifies the Federal government and its employees, agents, and contractors from any claims arising from the demolition of unsafe private structures and removal of demolition debris from private property (44 CFR 206.9).

e. The work is completed within the completion deadlines outlined in 44 CFR 206.204 for emergency work.

2. Eligible costs associated with the demolition of private structures may include, but are not limited to:

a. capping wells;
b. pumping and capping septic tanks;
c. filling in basements and swimming pools;
d. testing and removing hazardous materials from unsafe structures, including asbestos and household hazardous wastes;
e. securing utilities (electric, phone, water, sewer, etc.);
f. securing permits, licenses, and title searches. Fees for permits, licenses, and titles issued directly by the applicant are not eligible unless it can be demonstrated that the fees are above and beyond administrative costs; and
g. demolition of disaster-damaged outbuildings such as garages, sheds, and workshops determined to be unsafe.

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3. Ineligible costs associated with the demolition of private structures may include:

   a. removal of slabs or foundations, except in very unusual circumstances, such as when disaster-related erosion under slabs on a hillside causes an immediate public health and safety threat;
   b. removal of pads and driveways;

4. Structures condemned as safety hazards before the disaster are not eligible for demolition and subsequent demolition debris removal under Public Assistance grant authority.

5. Individuals and private organizations (except for eligible PNPs) will not be reimbursed for demolition activities on their own properties under the Public Assistance Program (44 CFR 206.224(c)).

6. The removal of substantially damaged structures and associated appurtenances acquired through a Section 404 FEMA Hazard Mitigation Grant Program buyout and relocation project may be eligible for Public Assistance grant funding under Section 407 of the Stafford Act. Such removal must be completed within two years of the declaration date, unless extended by the Assistant Administrator of the Disaster Assistance Directorate (44 CFR 206.224(a)(4)).

D. **Demolition of Commercial Structures.** The demolition of commercial structures is generally ineligible for Public Assistance grant funding. It is assumed and expected that these commercial enterprises retain insurance that can and will cover the cost of demolition. However, in some cases as determined by the FCO, the demolition of commercial structures by a State or local government may be eligible for FEMA reimbursement only when such removal is in the public interest (44 CFR 206.224(a) and (b)).

Apartments, condominiums, and mobile homes in commercial trailer parks are generally considered commercial structures with respect to Public Assistance funding.

E. **Environmental and Historic Review Requirements.** Eligible demolition activities must satisfy environmental and historic preservation compliance review requirements as established by 44 CFR Parts 9 and 10, the National Historic Preservation Act, the Endangered Species Act, and all other applicable legal requirements.

VIII. **ORIGINATING OFFICE:** Disaster Assistance Directorate (Public Assistance Division).

IX. **SUPERSESSION:** This policy supersedes Recovery Policy 9523.4 dated November 9, 1999, and all previous guidance on this subject.

X. **REVIEW DATE:** Three years from date of publication.

//signed//
Carlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

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Disaster Assistance Policy 9523.4 - Demolition of Private Structures (PDF 1.86MB)

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APPENDIX T: FEMA Policy – Hazardous Stump Extraction and Removal Eligibility

Disaster Assistance Policy 9523.11

I. **TITLE:** Hazardous Stump Extraction and Removal Eligibility

II. **DATE:** May 15, 2007

III. **PURPOSE:** Establish criteria used to reimburse applicants for removing eligible hazardous stumps from public or, where authorized, private property.

IV. **SCOPE AND AUDIENCE:** The policy is applicable to all major disasters and emergencies declared on or after the date of publication. It is intended for all personnel involved in the administration and execution of the Public Assistance Program, including applicants.

V. **AUTHORITY:** Sections 403 and 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206, as amended.

VI. **BACKGROUND:** Public Assistance regulations authorize reimbursement for the removal of debris from public and private land when it is in the public interest. Such removal is in the public interest when it is necessary to: eliminate immediate threats to life, public health and safety, or eliminate immediate threats of significant damage to improved public or private property; or to ensure economic recovery of the affected community to the benefit of the community at large. Trees that are uprooted during a disaster event such that all or part of their roots are exposed may pose an immediate threat to public health and safety.

VII. **POLICY:**

A. When a disaster event uproots a tree or stump (i.e., 50% or more of root ball is exposed) on a public right-of-way, improved public property or improved property owned by certain private nonprofit organizations, and the exposed root ball poses an immediate threat to life, public health and safety, FEMA may provide supplemental assistance to remove, transport, dispose, and provide fill for the root cavity of an eligible uprooted tree or stump. The Federal Emergency Management Agency (FEMA) will reimburse applicants reasonable costs for this type of work only when uprooted stumps are more than 24 inches in diameter (measured two feet from the ground), with the consensus of the Applicant and the State, and is approved in advance by FEMA, using the attached Hazardous Stump Worksheet.

1. If it is necessary to remove an uprooted stump before it can be inspected by FEMA because it poses a threat that must be dealt with immediately, the applicant must submit documentation, to FEMA including photographs, that establishes its location on public property, specifics on the threat, stump diameter measured two feet up the trunk from the ground, quantity of material to fill the hole, and any special circumstances.
2. FEMA will reimburse applicants for extraction, transport and disposal of stumps with a diameter of 24 inches or smaller at the unit cost rate for regular vegetative

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debris, using the attached Stump Conversion Table, as such stumps do not require special equipment.

3. FEMA will reimburse applicants at the unit cost rate (usually cubic yards) for normal debris removal for all stumps, regardless of size, placed on the rights-of-way by others (i.e., contractors did not extract them from public property or property of eligible Private Non Profit organization). In such instances, applicants do not incur additional cost to remove these stumps because the same equipment that is used to pick up "regular" debris can be used to pick-up these stumps.
4. If an applicant incurs additional costs in picking up large stumps (over 24 inches in diameter) from rights-of-way, it should complete the Hazardous Stump Worksheet and present documentation to FEMA in advance for consideration.
5. Stumps with less than 50% of their root ball exposed should be cut flush at ground level and the cut portion included with regular vegetative debris.
6. Straightening or bracing of trees is eligible for reimbursement if it is less costly than removal and disposal. Applicant must provide a cost analysis showing cost effectiveness.

VIII. **ORIGINATING OFFICE:** Disaster Assistance Directorate (Public Assistance Division)

IX. **SUPERSESSION:** This policy supersedes Recovery Policy Number 9523.11, Hazard Stump Removal and Extraction Eligibility dated May 6, 2006.

X. **REVIEW DATE:** Three years from the date of publication.

//signed//
David Garratt
Acting Assistant Administrator
Disaster Assistant Directorate

Disaster Assistance Policy 9523.11 - Hazardous Stump Extraction and Removal Eligibility (PDF 899KB)

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APPENDIX U: FEMA Policy – Debris Operations – Hand-Loaded Trucks and Trailers

Recovery Policy 9523.12

I. **TITLE: Debris Operations – Hand-Loaded Trucks and Trailers**

II. **DATE:** May 1, 2006

III. **PURPOSE:** To describe the criteria the Federal Emergency Management Agency (FEMA) will use to reimburse applicants for eligible debris removal accomplished with trucks and trailers loaded physically by hand, rather than with mechanical equipment.

IV. **SCOPE AND AUDIENCE:** The policy is applicable to all major disasters and emergencies declared on or after the date of publication. It is intended for all personnel involved in the administration and execution of the Public Assistance Program, including applicants.

V. **AUTHORITY:** Sections 403 and 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121-5206, as amended.

VI. **BACKGROUND:**

A. Debris removal companies under contract with local governments have frequently supplemented their vegetative debris removal operations by hiring subcontractors who modify their trucks and trailers by extending sidewalls with plywood or other materials to increase the vehicle's load capacity. Because of the tenuous nature of these improvements, operators typically load these vehicles physically by hand. The inefficiencies associated with loading these trucks or trailers by hand, instead of using mechanical equipment, effectively negates the increased capacity advantages of these vehicles. Hand loading cannot achieve compaction levels comparable to mechanically loaded vehicles. Further, the unit cost for transporting debris is based on mechanical loading of trailers and trucks.

B. FEMA performed studies throughout the State of Florida following the four devastating hurricanes in 2004 and determined that a mechanically-loaded vehicle had a weight-to-volume ratio at least twice that of hand-loaded vehicles. In other words, vehicles of the same measured capacity that were loaded by mechanical equipment and reasonably compacted carried at least twice the volume of debris as those loaded physically by hand. FEMA has therefore determined it is not reasonable to reimburse applicants - for hand-loaded vehicles and mechanically loaded vehicles – at the same rate.

VII. **POLICY:**

A. Debris monitors located at temporary or final debris disposal sites will reduce the observed capacity of each hand-loaded truck or trailer load by 50% because of the low compaction achieved by hand-loading. For example, if a 40 cubic-yard (CY) hand-loaded truck or trailer arrives at a debris management or disposal site, and it appears to be 100 percent full, the actual quantity of debris in the truck or trailer will be recorded as 20

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CY {(40 CY / 2) * 100%}. In the same manner, if the truck or trailer appears half full, the load will be recorded as 10 CY {(40 CY / 2) * 50%}. The maximum amount recorded for a hand-loaded vehicle will be 50% of its measured capacity.

B. FEMA will reimburse applicants on the basis of capacities calculated in VII-A.

VIII. **ORIGINATING OFFICE:** Recovery Division (Public Assistance Branch)

IX. **SUPERSESSION:** Not applicable.

X. **REVIEW DATE:** Three years from the date of publication.

//signed//
David Garratt
Acting Director of Recovery
Federal Emergency Management Agency

PDF Version of Recovery Policy 9523.12 - Debris Operations - Hand-Loaded Trucks and Trailers -- 92KB

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APPENDIX V: FEMA Policy – Debris Removal from Public Property

FEMA 325 Debris Management Guide – July 2007

Chapter 3 – Debris Removal from Public Property

This chapter discusses debris operations on public property and public rights-of-way. Applicants should document locations, conditions, and special circumstances of the debris prior to removal. This chapter includes preferred documentation information and requirements. Proper documentation enables an applicant to fully account for costs incurred in the event that Federal disaster assistance is made available.

Eligible Debris Removal

Eligible debris removal work under the Public Assistance Program must meet the following criteria:

- The debris was generated by the major disaster event;
- The debris is located within a designated disaster area on an eligible applicant's improved property or rights-of-way; and
- The debris removal is the legal responsibility of the applicant.

Ineligible Debris Removal

The following are not eligible for FEMA assistance under the Public Assistance Program:

- Any debris removal from an eligible applicant's unimproved property or undeveloped land;
- Any debris removal from a facility that is not eligible for funding under the Public Assistance Program, such as a PNP cemetery or PNP golf course; or
- Any debris removal from Federal lands or facilities that are the authority of another Federal agency or department, such as Federal-aid roads, USACE navigable waterways, and NRCS canals. See Chapter 16, *Other Federal Assistance*, for a description of these authorities.

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APPENDIX W: FEMA Policy – Debris Removal from Private Property

Disaster Assistance Policy 9523.13

I. **TITLE:** Debris Removal from Private Property

II. **DATE:** July 18, 2007

III. **PURPOSE:** This policy describes the criteria that the Federal Emergency Management Agency (FEMA) will use to evaluate the eligibility of debris removal work from private property under the Public Assistance Program.

IV. **SCOPE AND AUDIENCE:** The policy is applicable to all major disasters and emergencies declared on or after the date of publication of this policy. It is intended for FEMA personnel involved in the administration of the Public Assistance Program.

V. **AUTHORITY:** Sections 403(a)(3)(A), 407, and 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5170b, 42 U.S.C. 5173, 42 U.S.C. 5192, and 44 CFR 206.224.

VI. **BACKGROUND:**

A. Sections 403(a)(3)(A) and 407 of the Stafford Act, 42 U.S.C. 5170b and 5173, respectively, provide FEMA authority to fund debris removal from private property provided that the State or local government arranges an unconditional authorization for removal of the debris, and agrees to indemnify the Federal government against any claim arising from the removal.

B. The regulations implementing Sections 403 and 407 of the Stafford Act at 44 CFR 206.224 establish the requirement that debris removal be in the "public interest" in order to be eligible for reimbursement. "Public interest" is defined as being necessary to:

1. eliminate immediate threats to life, public health, and safety; or
2. eliminate immediate threats of significant damage to improved public or private property; or
3. ensure economic recovery of the affected community to the benefit of the community-at-large.

C. Generally, debris removal from private property following a disaster is the responsibility of the property owner. However, large-scale disasters may deposit enormous quantities of debris on private property over a large area resulting in widespread immediate threats to the public-at-large. In these cases, the State or local government may need to enter private property to remove debris to: eliminate immediate threats to life, public health, and safety; eliminate immediate threats of significant damage to improved property; or ensure economic recovery of the affected community to the benefit of the community-at-large. In these situations, debris removal from private property may be considered to be in the public interest and thus may be eligible for reimbursement under the Public Assistance Program (44 CFR 206.224).

VII. **POLICY:**

A. **Definitions**.

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1. Disaster-generated debris: Any material, including trees, branches, personal property and building material on public or private property that is directly deposited by the disaster.

2. Improved property: Any structure, facility, or equipment that was built, constructed, or manufactured. Examples include houses, sheds, car ports, pools, and gazebos. Land used for agricultural purposes is not improved property (44 CFR 206.221(d)).

3. Legal responsibility: A statute, formally adopted State or local code, or ordinance that gives local government officials responsibility to enter private property to remove debris or to perform work to remove an immediate threat (44 CFR 206.223(a)(3), 44 CFR 206.221(c), and 44 CFR 206.225(a)(3)).

4. Private property: Land and structures, to include contents within the structures, built on land that is owned by non-governmental entities (44 CFR 206.224(b)).

5. Private road: Any non-public road for which a subdivision of the State is not legally responsible to maintain. Private roads include roads owned and maintained by homeowners associations, including gated communities, and roads for which no entity has claimed responsibility. Local police, fire, and emergency medical entities may use these roads to provide services to the community (44 CFR 206.224(b)).

B. **Approval for FEMA Assistance**. FEMA will work with states affected by a disaster to designate those areas where the debris is so widespread that removal of the debris from private property is in the “public interest" pursuant to 44 CFR 206.224, and thus is eligible for FEMA Public Assistance reimbursement on a case-by-case basis.

1. Any State or local government that intends to seek reimbursement to remove debris from private property within a designated area will, prior to commencement of work, submit a written request for reimbursement to, and receive approval from, the Federal Coordinating Officer (FCO). The written request will include the following information:

   a. Public Interest Determination (44 CFR 206.224(a)):
      i. Immediate Threat to Life, Public Health, and Safety Determination. The basis of a determination by the State, county or municipal government's public health authority or other public entity that has legal authority to make such a determination that disaster-generated debris on private property in the designated area constitutes an immediate threat to life, public health, and safety; or

      ii. Immediate Threat to Improved Property Determination. The basis of the determination by the State, county, or municipal government that the removal of disaster-generated debris is cost effective. The cost to remove the debris should be less than the cost of potential damage to the improved property in order for the debris removal to be eligible; or

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iii. Ensure Economic Recovery of the Affected Community to the Benefit of the Community at Large Determination. The basis of the determination by the State, county, or municipal government that the removal of debris from commercial properties will expedite economic recovery of the community-at-large. Generally, commercial enterprises are not eligible for debris removal.

b. Documentation of Legal Responsibility (44 CFR 206.223(a)(3)).

A detailed explanation documenting the requesting State or local government's authority and legal responsibility at the time of disaster to enter private property to remove debris, and confirmation that all legal processes and permission requirements (e.g., right-of-entry) for such action have been satisfied.

i. The eligible applicant requesting assistance must demonstrate the legal basis as established by law, ordinance, or code upon which it exercised or intends to exercise its responsibility following a major disaster to remove disaster-related debris from private property. Codes and ordinances must be germane to the condition representing an immediate threat to life, public health, and safety, and not merely define the applicant's uniform level of services. Typically, solid waste disposal ordinances are considered part of an applicant's uniform level of services.

States and local governments ordinarily rely on condemnation and/or nuisance abatement authorities to obtain legal responsibility prior to the commencement of debris removal work. There may be circumstances, however, where the State or local government determines that ordinary condemnation and/or nuisance abatement procedures are too time-consuming to address an immediate public health and safety threat. In such circumstances, applicants do not have to precisely follow their nuisance abatement procedures or other ordinances that would prevent the State or local government from taking emergency protective measures to protect public health and safety (44 CFR 206.225(a)).

ii. The applicant's legal responsibility to take action where there is an immediate threat to life, public health, and safety must be independent of any expectation, or request, that FEMA will reimburse costs incurred for private property debris removal. In addition, legal responsibility is not established solely by an applicant obtaining signed rights-of-entry and hold harmless agreements from property owners.

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c. Authorization for Debris Removal from Private Property (44 CFR 206.223(a)(3)). Confirmation that a legally-authorized official of the requesting applicant has ordered the exercise of public emergency powers or other appropriate authority to enter onto private property in the designated area in order to remove/reduce threats to life, public health, and safety threat via debris removal.

d. Indemnification (44 CFR 206.9). The requesting entity indemnifies the Federal government and its employees, agents, and contractors from any claims arising from the removal of debris from private property.

2. The FCO will approve or disapprove in writing each written request submitted by the State or local government for FEMA to designate areas eligible for private property debris removal. After receiving approval from the FCO, the State or local government may begin identifying properties and the specific scope of work for private property debris removal activities and apply for supplemental assistance through the Public Assistance Program.

C. **Duplication of Benefits** (44 CFR 206.191). FEMA is prohibited by Section 312 of the Stafford Act from approving funds for work that is covered by any other source of funding. Therefore, State and local governments must take reasonable steps to prevent such an occurrence, and verify that insurance coverage or any other source of funding does not exist for the debris removal work accomplished on each piece of private property.

1. When debris removal from private property is covered by an insurance policy, the insurance proceeds must be used as the first source of funding. Public Assistance grant funding may be used to pay for the remainder of the costs of debris removal from private property.

2. If FEMA discovers that a duplication of benefits from any other source of funding has occurred, FEMA will de-obligate funds from the Grantee in the amount that such assistance duplicates funding that the property owners received from other sources.

D. **Eligibility of Debris Removal Work from Private Property** (44 CFR 206.224(b)).

1. Eligible debris removal work from private property includes removal of:
   a. Large piles of disaster-generated debris in the living, recreational, and working areas of properties in urban, suburban, and rural areas, including large lots.
   b. Disaster-generated debris obstructing primary ingress and egress routes to improved property.

   c. Disaster-damaged limbs and leaning trees in danger of falling on improved property, primary ingress or egress routes, or public rights-of-way.
      i. Hazardous tree removal is eligible only if the tree is greater than six inches in diameter (measured at diameter breast height) and meets any of the following criterion: more than 50% of the crown is damaged or destroyed; the trunk is split or broken

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branches expose the heartwood; or the tree is leaning at an angle greater than 30 degrees and shows evidence of ground disturbance.

ii. Hazardous limb removal is eligible only if the limb is greater than two inches in diameter measured at the point of break.

d. Debris created by the removal of disaster-damaged interior and exterior materials from improved property.

e. Household hazardous wastes (such as household cleaning supplies, insecticides, herbicides, etc.)

f. Disaster-generated debris on private roads, including debris originating from private property and placed at the curb of public or private rights-of-way, provided that the removal of the debris is the legal responsibility of an eligible applicant, on the basis of removing an immediate threat to life, public health, and safety.

2. Ineligible debris removal work on private property includes the removal of:

a. Debris from vacant lots, forests, heavily wooded areas, unimproved property, and unused areas.

b. Debris on agricultural lands used for crops or livestock.

c. Concrete slabs or foundations-on-grade.

d. Reconstruction debris consisting of materials used in the reconstruction of disaster-damaged improved property.

E. **Debris Removal from Commercial Property**. The removal of debris from commercial property is generally ineligible for Public Assistance grant funding. It is assumed and expected that these commercial enterprises retain insurance that can and will cover the cost of debris removal. However, in some cases as determined by the FCO, the removal of debris from private commercial property by a State or local government may be eligible for FEMA reimbursement only when such removal is in the public interest (44 CFR 206.224(a) and (b)).

Industrial parks, golf courses, commercial cemeteries, apartments, condominiums, and mobile homes in commercial trailer parks are generally considered commercial property with respect to Public Assistance funding.

F. **Environmental and Historic Review Requirements**. Eligible debris removal activities on private property must satisfy environmental and historic preservation compliance review requirements as established by 44 CFR Parts 9 and 10, the National Historic Preservation Act, the Endangered Species Act, and all other applicable legal requirements.

VIII. **ORIGINATING OFFICE:** Disaster Assistance Directorate (Public Assistance Division)

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IX. **SUPERSESSION:** This policy supersedes Recovery Policies 9523.13 and 9523.14, dated October 23, 2005, and all previous guidance on this subject.

X. **REVIEW DATE:** Three years from date of publication.

//signed//
Carlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

Disaster Assistance Policy 9523.13 - Debris Removal from Private Property (PDF 4.4MB)

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APPENDIX X: FEMA Policy – Labor Costs – Emergency Work

Recovery Policy 9525.7

I. **TITLE:** Labor Costs - Emergency Work

II. **DATE:** November 16, 2006

III. **PURPOSE:** Provide guidance on the eligibility of labor costs for an applicant's permanent, temporary, and contract employees who perform emergency work under Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5121-5206, as amended.

IV. **SCOPE AND AUDIENCE:** This policy applies to all emergencies, major disasters, and fire management assistance declarations, declared on or after the publication date of this document.

V. **AUTHORITY:** Sections 403, 407, 420 and 502 of the Stafford Act and 44 Code of Federal Regulations (CFR) §204.42, §206.224 and §206.225.

VI. **BACKGROUND:**

A. On October 14, 1993, FEMA published a regulation that made the force account labor straight-time salary for work under Section 403 and 407 ineligible under the Public Assistance Program. The 1993 regulation did not include emergency work accomplished under Section 502 (Federal Emergency Assistance) of the Stafford Act. The ineligibility of straight-time salaries for emergency work under Section 502 is included as a provision of the FEMA-State Agreement.

B. Labor (straight-time, overtime, and fringe benefits to the extent the benefits were being paid before the disaster) performed under Section 406 (permanent work) of the Stafford Act remains eligible for reimbursement.

VII. **POLICY:**

A. Under Sections 403, 407, and 502 of the Stafford Act, eligible emergency work labor costs are those costs incurred by an eligible applicant while performing eligible work. The cost of straight-time salaries and benefits of an applicant's permanently employed personnel is not eligible in calculating the cost of eligible emergency work. The FEMA-State Agreement will stipulate the ineligibility of straight-time salaries and benefits of an applicant's permanently employed personnel performing emergency work (Categories A and B). For the purpose of this policy, "permanently employed personnel" will refer to those employees whose positions are already included in the applicant's budget.

B. Fixed-term employees, such as seasonally employed personnel, when covered under existing budgets and used for a disaster during the season of employment, are considered permanently employed for the purpose of cost eligibility.

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C. Straight-time and overtime will be determined in accordance with the applicant's pre-disaster policies, which should be applied consistently in both disaster and non-disaster situations. For example, one applicant may define labor exceeding 8 hours a day as overtime, while another might define labor exceeding 40 hours a week as overtime. However, all costs, including premium pay, must be reasonable and equitable for the type of work being performed.

D. The actual costs of salaries and benefits for individuals sent home or told not to report due to emergency conditions are not eligible for reimbursement. Extraordinary costs for essential employees who are called back to duty during administrative leave to perform disaster-related emergency work are eligible if the costs were provided for in written policy prior to the disaster.

E. The costs for contract labor, mutual aid in accordance with an existing agreement, or temporary hires needed to accomplish emergency work are eligible for reimbursement. However, straight-time salary and benefits of force account labor overseeing contractors performing emergency work are not eligible in calculating the cost of eligible emergency work.

F. The reimbursement of force account or temporary labor to backfill regular staff who are performing eligible emergency work may be eligible. Backfill cost is defined as the straight-time salary and benefits and overtime of replacement personnel who perform the regular duties of other personnel while they are performing eligible emergency work under the Public Assistance Program. There are several circumstances which affect the eligibility of the backfill employee.
   1. If the backfill employee is a contract or extra hire, the cost of this extra person represents an extra cost to the applicant. Regular and overtime are eligible. If the employee is permanently employed, straight time is not eligible. Only overtime costs are eligible.
   2. The cost of straight-time salaries and benefits of an applicant's permanently employed personnel, of any department, regardless of any inter-departmental agreements, are not eligible.
   3. If the backfill employee is a regular employee who is called in on his/her day off (weekend or other off day), there may be an extra cost to the applicant. Regular and overtime costs may be eligible.
   4. If the backfill employee is called in from scheduled leave, there should be no extra cost as the leave can be rescheduled. Only the overtime is eligible.
   5. Generally, exempt employees (i.e. those who are exempt from minimum wage and overtime provisions of the Fair Labor Standards Act) are not eligible for overtime, unless specified in an applicant's pre-disaster policy.

G. Permanent employees who are funded from an external source (e.g., by a grant from a Federal agency, statutorily dedicated funds, rate-payers, etc.) to work on specific non-disaster tasks may be paid for emergency work. However, the FEMA Region is to consult with FEMA headquarters before approving payment.

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H. Reimbursement of labor costs for employees performing emergency work is limited to actual time worked, even when the applicant is contractually obligated to pay for 24 hour shifts. It is not reasonable for a person to work more than 48 hours continuously without an extended rest period. Therefore, FEMA will reimburse up to 24 hours for each of the first two days, and up to 16 hours for each of the following days for emergency work. All requested hours must be for actual time worked. Standby time is not eligible under the Public Assistance Program or Fire Management Assistance Grant Program. Pre-positioning under the Fire Management Assistance Grant Program is eligible if the resources were actually used to suppress a declared fire.

I. The value of volunteers accomplishing eligible emergency work can be credited toward the non-Federal cost share of the applicant's emergency work in accordance with Donated Resources Policy #9525.2.

VIII. **ORIGINATING OFFICE:** Recovery Division (Public Assistance Branch)

IX. **SUPERSESSION:** This policy updates and replaces all relevant provisions of previous Public Assistance policy documents or guidance on this subject.

X. **REVIEW DATE:** Three years from date of publication.

//signed//
David Garratt
Acting Director of Recovery
Federal Emergency Management Agency

Recovery Policy 9525.7 - Labor Costs - Emergency Work (PDF 1.1MB)

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APPENDIX Y: FEMA Fact Sheet – Emergency Contracting versus Emergency Work

Recovery Policy 9580.4

Date Published: October 23, 2008

Overview

Debris removal and emergency protective measures, Category A and B, respectively, are considered "emergency work" in the Federal Emergency Management Agency's (FEMA) Public Assistance Program. In general, contracting for emergency work requires competitive bidding. Applicants must comply with applicable Federal, State, and local laws and regulations; provided that the procurement conforms to the Federal law and standards set forth in 44 CFR Part 13 that non-competitive contracting may be acceptable ONLY in rare circumstances where specific criteria are met. See 44 CFR §13.36(c) and (d).

Emergency Work vs. Emergency Contracting

- Performing emergency work (Categories A and B) does not relieve the applicant from the requirements of competitive bidding. Not all emergency work is time sensitive to the point where competitive bidding is infeasible. In some situations, awarding a short-term non-competitive contract for site-specific work may be warranted; however, if the contract is for a long-term operation lasting weeks or months, the contract should be competitively bid as soon as possible. Contracts that are based on cost plus a percentage of the cost shall not be used for either competitive or non-competitive procurement. See 44 CFR §13.36 (f)(4).

- In order to be reimbursed for work performed under a contract that was not competitively bid, the procurement of that work must not have been feasible under small purchase procedures, sealed bids, or competitive proposals, and one of the following circumstances may apply:
    - The item is available only from a single source;
    - There is a public exigency or emergency for the requirement that will not permit delay from competitive solicitation;
    - The awarding agency authorizes noncompetitive proposals; or
    - Solicitation from a number of sources has been attempted, and competition is determined to be inadequate. See 44 CFR §13.36(d)(4)(i))

- When using competitive solicitations, applicants can use an expedited process for obtaining competitive bids. However, applicants must also comply with applicable State

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and local procurement requirements, which may be more stringent than Federal requirements. See 44 CFR §13.36(b).

- Whether utilizing competitive or non-competitive procurement procedures, all costs must be determined reasonable by FEMA to be eligible for reimbursement. See 44 CFR §13.36(d)(4)(ii). In cases where non-competitive procurement procedures are used, the applicant may be required to submit the proposed procurement to the awarding agency (FEMA) for review. See 44 CFR §13.36(d)(4)(iii).

- Applicants should be advised that no contractor has the authority to make eligibility determinations, determinations of acceptable emergency contracting procedures, or definitions of emergency work. Eligibility determinations are made solely by FEMA.

//signed//
Carlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

Disaster Assistance Fact Sheet 9580.4 - Emergency Work Contracting (PDF 672KB)

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APPENDIX Z: FEMA Fact Sheet – Debris Removal – Applicant's Contracting Checklist

Fact Sheet 9580.201

Overview

To be eligible for reimbursement under the Public Assistance Program, contracts for debris removal must meet rules for Federal grants, as provided for in 44 CFR Part 13.36 Procurement. Public Assistance applicants should comply with their own procurement procedures in accordance with applicable State and local laws and regulations, provided that they conform to applicable Federal laws and standards identified in Part 13. The following guidance is provided to assist Public Assistance applicants in the procurement process.

Contracting Process Checklist

- Use competitive bidding procedures. Complete and document a cost analysis to demonstrate price reasonableness on any contract or contract modification where adequate price competition is lacking, as detailed in 44 CFR 13.36(f).
- Provide a clear and definitive scope of work and monitoring requirements in the request for proposals/bids. Use acceptable emergency contracting procedures that include an expedited competitive bid process only if time does not allow for more stringent procedures.
- Require bidders to provide copies of references, licenses, financial records, and proof of insurance and bonding.
- Obtain review from your legal representative of your procurement process and any contract to be awarded to ensure they are in compliance with all Federal, State, and local requirements.
- Document procedures used to obtain/award contracts (procurement information, bid requests and tabulations, etc).
- Use load ticket requirement to record with specificity (e.g., street address) where debris is picked up and the amount picked up, hauled, reduced and disposed of.

FEMA will, when requested by applicants, assist in the review of debris removal contracts. However, such a review does not constitute approval.

Contract Provisions Checklist
All contracts must contain/reflect the following provisions:

- All payment provisions must be based on unit prices.
- No payments may be based on time and material costs unless limited to work performed during the first 70 hours of actual work following a disaster event.
- That payment will be made only for debris that FEMA determines eligible, referencing FEMA regulations and Public Assistance guides and fact sheets. (This is an optional

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provision to protect the applicant, and is used only following a major disaster declaration.)

- An invoice provision requiring contractors to submit invoices regularly and for no more than 30-day periods.
- A "Termination for Convenience" clause allowing contract termination at any time for any reason.
- A reasonable limit on the period of performance for the work to be done.
- A subcontract plan including a clear description of the percentage of the work the contractor may subcontract out and limiting use of subcontractors to only those you approve.
- The preference that the contractor use mechanical equipment to load and reasonably compact debris into the trucks and trailers.
- The requirement that the contractor provide a safe working environment, including properly constructed monitoring towers.
- Option of a unit price for extracting from ground and removing FEMA-eligible stumps (only for stumps with diameters larger than 24 inches, measured 24 inches above the ground, and with 50% or more of the root ball exposed), or including all stumps in the unit price.
- Requirement that all contract amendments and modifications be in writing.
- Requirement that contractor obtain adequate payment and performance bonds and insurance coverage.

Pre-Disaster and Stand-By Contracts Checklist

- It is recommended that you pre-qualify contractors prior to an event and solicit bid prices from this list of contractors once an event has occurred.
- The solicitation for pre-qualifying contractors must adequately define in the proposed scope of work all the potential types of debris, typical haul distances, and size of events for which a contract may be activated.
- You may request bids for multiple scenarios for varying sizes of events.
- To ensure reasonable debris removal costs, award debris removal contracts based on unit prices (volume or weight).
- If the contract is awarded on a time and material basis, it should be limited to no more than 70 hours of actual clearance and removal operations.
- After the initial 70-hour period, payment should be on a unit price basis (volume or weight).

Avoidance Checklist

- **DO NOT:** Award a debris removal contract on a sole-source basis.
- **DO NOT:** Sign a contract (including one provided by a contractor) until it has been thoroughly reviewed by your legal representative.
- **DO NOT:** Allow any contractor to make eligibility determinations, since only FEMA has that authority.
- **DO NOT:** Accept any contractor's claim that it is "FEMA certified." FEMA does not certify, credential, or recommend debris contractors.

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- **DO NOT:** Award a contract to develop and manage debris processing sites unless you know it is necessary, and have contacted the State for technical assistance concerning the need for such operations. Temporary debris storage and reduction sites are not always necessary.
- **DO NOT:** Allow separate line item payment for stumps 24 inches and smaller in diameter; these should be treated as normal debris.
- **DO NOT:** "Piggyback" or utilize a contract awarded by another entity. Piggybacking may be legal under applicable state law; however, the use of such a contract may jeopardize FEMA funding.
- **DO NOT:** Award pre-disaster/stand-by contracts with mobilization costs or unit costs that are significantly higher than what they would be if the contract were awarded post-disaster. Such contracts should have variable mobilization costs depending upon the size of the debris work that may be encountered.

PDF Version of Fact Sheet 9580.201 - Applicant's Contracting Checklist-- 40KB

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APPENDIX AA: FEMA Fact Sheet – Debris Removal – Authorities of Federal Agencies

Fact Sheet 9580.202

Overview

This fact sheet identifies and describes the authorities of federal departments and agencies in support of debris operations following a presidential emergency or major disaster declaration. The following nine Federal agencies and departments are invested with authorities (described in detail below) addressing various aspects of debris management.

- Department of Homeland Security
  - *Federal Emergency Management Agency*
  - *United States Coast Guard*
- Department of Defense: *U.S. Army Corps of Engineers*
- Department of Agriculture
  - *Natural Resources and Conservation Service*
  - *Farm Service Agency*
  - *Animal Plant and Health Inspection Service*
- Environmental Protection Agency
- Department of Transportation: *Federal Highway Administration*
- Department of Commerce: *National Oceanic and Atmospheric Administration*

Department of Homeland Security
Federal Emergency Management Agency (FEMA)

- FEMA is authorized in Sections 403, 407 and 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to provide assistance to eligible applicants to remove debris from public and private property following a Presidential disaster declaration, when in the public interest.
- Removal must be necessary to eliminate immediate threats to lives, public health and safety; eliminate immediate threats of significant damage to improved public or private property; or ensure the economic recovery of the affected community to the benefit of the community-at-large. The debris must be the direct result of the disaster and located in the disaster area, and the applicant must have the legal responsibility to remove the debris.
- FEMA will (1) reimburse applicants to remove eligible debris, or (2) through a mission assignment to another Federal agency (and upon request of the State) - provide direct Federal assistance when it has been demonstrated that the State and local government lack the capability to perform or contract for the requested work.
- Assistance will be cost-shared (at no less than 75% Federal and 25% non-Federal). In extreme circumstances, FEMA will provide up to 100% funding for a limited period of time.

United States Coast Guard (USCG)

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- Under the National Contingency Plan (NCP), the USCG and Environmental Protection Agency (EPA) are responsible for providing pre-designated Federal On-Scene Coordinators (FOSCs) to conduct emergency removals of oil and hazardous materials.
- USCG is responsible for the coastal zone, and the EPA is responsible for the inland zone. The delineation between coastal and inland zones is by mutual agreement between the USCG and the EPA, and the geographic limits are indicated in Area Contingency Plans.
- Under the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA (also known as Superfund), and the Clean Water Act, USCG has the authority to respond to actual or potential discharges of oil and actual or potential releases of hazardous substances, pollutants and contaminants that may endanger public health or the environment.
- Response actions may include containment, stabilization, decontamination, collection (e.g., orphan tanks and drums), and final disposal. Debris may be mixed with, or contain, oil or hazardous materials that are subject to USCG response authorities. Oil removal is funded from the Oil Spill Liability Trust Fund, while hazardous materials removal is conducted using CERCLA funds.
- USCG, under the Ports and Waterways Safety Act (33 U.S.C. §§1221), is responsible for keeping waterways safe and open. While there is no specific language stating that the USCG is responsible for debris removal from waterways, the USCG has been tasked - in the past - to assist in waterway and marine transportation system recovery.

Department of Defense
United States Army Corps of Engineers (USACE)

- USACE is authorized by Section 202 of Water Resources Development Act (WRDA) of 1976 (PL 94-587) to develop projects for the collection and removal of drift and debris from publicly maintained commercial harbors, and from land and water areas immediately adjacent thereto.
- Specific and limited local programs for continuing debris collection and disposal have been authorized (on an individual basis, with the authorized work carried out at each locality as a separate, distinct project) by Congress for:
    - New York Harbor
    - Baltimore Harbor
    - Norfolk Harbor
    - Potomac and Anacostia Rivers, in the Washington, D.C. Metropolitan area
    - San Francisco Harbor/Bay, California.
- Sections 15, 19, and 20 of the River and Harbor Act of 1899, as amended, authorize USACE to remove sunken vessels or other obstructions from navigable waterways under emergency conditions. A navigable waterway is one that has been authorized by Congress, and which USACE operates and maintains for general (including commercial and recreational) navigation. Funding for operation and maintenance of these Federal waterways is through USACE's annual Operations and Maintenance General Appropriation. USACE's policy is to oversee removal of sunken vessels by an identifiable owner, operator or lessee if the sunken vessel is in or likely to be moved into a Federal navigation channel. USACE will remove a vessel using its emergency

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authorities only if the owner, operator, or lessee cannot be identified or they cannot effect removal in a timely and safe manner.

- USACE is also authorized, under Flood Control and Coastal Emergencies (PL 84-99), to provide assistance for debris removal from flood control works, i.e., structures designed and constructed to have appreciable and dependable effects in preventing damage by irregular and unusual rises in water level. Under this authority, USACE requires that an applicant to be eligible for assistance be an active participant in its PL 84-99 Rehabilitation and Inspection Program at the time of the disaster.

United States Department of Agriculture
Natural Resources Conservation Service (NRCS)

- NRCS' Emergency Watershed Protection Program (EWP) is authorized by Section 216 of the Flood Control Act of 1950, PL 81–516, 33 U.S.C. 701b–1; and Section 403 of the Agricultural Credit Act of 1978, PL 95–334, as amended by Section 382, of the Federal Agriculture Improvement and Reform Act of 1996, PL 104–127, 16 U.S.C. 2203.
- Debris clean up must be for either runoff retardation or soil erosion prevention that is causing a sudden impairment in the watershed creating an imminent threat to life or property. Typically, this includes debris within channels but could also include debris in close proximity to a channel or situated where the next event could create an imminent threat to life or property. There is no size limit to the watershed except that EWP assistance is not eligible for coastal erosion restoration.
- The EWP is funded through specific Congressional appropriations.
- Public and private landowners are eligible for assistance but must be represented by a project sponsor (a state or political subdivision thereof, qualified Indian tribe or tribal organization, or unit of local government).
- Work can be done either through Federal or local contracts. Sponsors are responsible for the 75% local cost share.
- NRCS can provide assistance when the President declares an area to be a major disaster area or when an NRCS State Conservationist determines that a watershed impairment exists.
- NRCS will not provide funding for activities undertaken by a sponsor prior to the signing of an agreement between NRCS and the sponsor.

Farm Service Agency (FSA)

- Emergency Conservation Program (ECP) is authorized by Sections 401 - 406 of the Agricultural Credit Act of 1978, PL 95–334, and provides emergency assistance for debris removal from privately-owned land following a natural disaster. It is funded through Congressional supplemental appropriations.
- The damage must be so costly that Federal assistance is or will be required to return the land to productive agricultural use or to provide emergency water for livestock.
- The ECP provides emergency cost share funding (up to 75% federal share) and technical assistance for farmers and ranchers to remove debris (other than animal carcasses).

Animal, Plant and Health Inspection Service (APHIS)

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- APHIS has two programs under which it can provide debris removal assistance:
    - Veterinary Services (VS) program authorized by Animal Health Protection Act (7 U.S.C. 8301–8317) which provides for removal and burial of diseased animal carcasses.
    - Plant Protection and Quarantine (PPQ) program authorized by Plant Protection Act (Title IV, Pub. L. 106–224, 114 Stat. 438, 7 U.S.C. 7701–7772). This program manages issues related to the health of plant resources. Primary objective is to regulate and monitor in order to reduce the risk of introduction and spread of invasive species, including planning, surveillance, quick detection, containment, and eradication.
- Both public and private lands are eligible under these programs which provide assistance to Federal, State, tribes, local jurisdictions, and private landowners to manage animal and plant health by collecting and providing information, conducting or supporting treatments, providing technical assistance for planning and program implementation (removal).

Environmental Protection Agency (EPA)

- EPA's primary authorities related to debris removal fall into two categories: (1) authorities related to cleaning up debris that is mixed with or contains oil or hazardous materials; and (2) authorities related to establishing standards for proper management of debris (hazardous and non-hazardous). EPA generally does not remove non-hazardous debris after emergencies/disasters.
- Under the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA (also known as Superfund), and the Clean Water Act, EPA and the United States Coast Guard (USCG) have the authority to respond to actual or potential discharges of oil and actual or potential discharges of hazardous substances, and to actual or potential discharges of pollutants and contaminants that may present an imminent and substantial danger to the public health or welfare.
- EPA has responsibility for responses in the inland zone and USCG has responsibility for responses in the coastal zone. The delineation between the inland and coastal zone is determined by mutual agreement by the EPA and USCG, and the geographic boundaries are indicated in Area Contingency Plans.
- EPA and USCG carry out these responsibilities under implementing regulations known as the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). EPA and USCG pre-designate Federal On-Scene Coordinators (FOSCs) to direct and coordinate response actions.
- Response actions may include containment, stabilization, decontamination, collection (e.g., orphan tanks and drums), and disposal. Debris may be mixed with, or contain, oil or hazardous materials that are subject to these response authorities.
- CERCLA requires that the State in which the site is located fund 10% of remedial action costs, with the other 90% drawn from the Superfund. However, where the potentially responsible party is a political subdivision of a State, the State must agree to fund 50% of the remedial action costs, with the other 50% drawn from the Superfund.
- The Resource Conservation and Recovery Act established a framework for Federal, State, and local cooperation in controlling the management of hazardous and non-

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hazardous solid waste. The EPA role is to establish minimum regulatory standards that are, in most cases, implemented by the States and to provide technical assistance. EPA administers other laws as well that may impact the management of debris (e.g., Clean Air Act requirements that apply to asbestos-containing debris). Again, some of these programs may be delegated to the States.

- FEMA may mission assign the EPA through the United States Army Corps of Engineers to dispose of household hazardous waste following a major disaster declaration from the President.

Department of Transportation
Federal Highway Administration (FHWA)

- The Emergency Relief (or ER) program is authorized in Title 23, United States Code, Section 125, from the Highway Trust Fund, and supports repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of natural disasters or catastrophic failures from an external cause.
- Debris removal from Federal-aid roads is eligible for 100% reimbursement during the first 180 days following an emergency event that qualifies and is approved for the ER program.
- The ER program is funded $100 million in annual authorizations. If the annual authorization is expended, FHWA will reimburse eligible costs when ER funds become available.
- The State must incur a cost of at least $700,000 statewide to qualify for ER assistance. The cost of individual projects (sites) must be $5,000.
- It is the responsibility of individual States to request ER funds for assistance in the cost of necessary repair of Federal-aid highways damaged by natural disasters or catastrophic failures.

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Department of Commerce
National Oceanic and Atmospheric Administration (NOAA)

- The Coastal and Geodetic Survey Act of 1947 and the Hydrographic Services Improvement Acts of 1998, 2002, authorize NOAA to be directly involved in programs to assess and remove hazards and debris. NOAA does not fund debris removal.
- NOAA's Office of Coastal Survey is responsible for surveying and charting the nation's waters and coast, and has been heavily involved in hydro-surveying using side-scan and multi-beam sonar to identify hazards and debris and dangers to navigation along the Gulf Coast for the last three years.

/Signed/
David Garratt
Acting Director of Recovery

Date: January 27, 2007

PDF Version of Fact Sheet 9580.202 - FACT SHEET: Debris Removal Authorities of Federal Agencies -- 333KB

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APPENDIX BB: FEMA Fact Sheet – Debris Monitoring

Fact Sheet 9580.203

Overview

When a disaster event occurs that produces large amounts of debris, effective coordination is required between the Public Assistance applicant, State, and FEMA to ensure that debris removal operations are efficient, effective, and eligible for FEMA Public Assistance grant funding. Eligible Public Assistance applicants are encouraged to monitor debris removal operations and document eligible quantities and reasonable expenses to ensure that the work is eligible for Public Assistance grant funding. Failure to do so properly may jeopardize this funding.

Public Assistance applicants can use force account resources or contractors to monitor debris removal operations, or a combination of both. Regardless of the method, the applicant is responsible for ensuring that applicant-managed debris removal work (either force account or contract) being funded through Public Assistance grants is eligible in accordance with Public Assistance guidelines. This Fact Sheet provides Public Assistance applicants with information on how to properly monitor applicant-managed debris removal operations to ensure compliance with these guidelines. It also provides information on debris monitoring responsibilities and duties that apply to both force account and contractor operations; however, some information provided only applies to debris operations performed under contract.

Debris Monitoring Roles and Responsibilities

Monitoring debris removal operations requires comprehensive observation and documentation by the Public Assistance applicant of debris removal work performed from the point of debris collection to final disposal. Monitoring debris removal work involves constant observation of crews to ensure that workers are performing eligible work in accordance with Public Assistance guidelines, and helps to verify compliance with all applicable Federal, State, and local regulations.

A number of different entities play a role in monitoring debris removal operations to ensure that they are efficient, effective and eligible for FEMA Public Assistance funding. It is important that these entities work together to communicate and resolve issues in the field so that reimbursement funding for debris removal operations is not jeopardized. Below is a table which addresses the general monitoring responsibilities and tasks of different partners in the debris removal operation. The table is followed by specific monitoring responsibilities and duties for both force account and contractor debris monitors in the field.

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Entity	Responsibilities	Tasks
Debris Removal Contractor	Conduct debris removal operations per the terms of the contract.	• Monitor its own day-to-day operations to ensure its contractual obligations are being met.
Public Assistance Applicant Monitoring Contractor	Works for Applicant to monitor debris contractor's day-to-day operations to ensure the applicants expectations and contractual requirements are being met.	• Provide debris monitoring personnel who are trained in eligibility. • Monitor operations in accordance with the contract requirements. • Provide all monitoring documents as required in the monitoring contract.
Public Assistance Applicant (subgrantee)	Provide oversight and quality assurance of both the debris removal contract and the monitoring contract (if applicable). Request PA funds for eligible work. Ensure performance measures are met and eligible work is documented. Understand eligibility requirements and ensure work performed under the contract meets these requirements.	• Designate project manager. *If debris removal is performed by force account labor:* • Provide documentation to substantiate eligible debris quantities. • Ensure compliance with subgrant requirements. *If debris removal is performed under contract:* • Ensure that debris removal contractors and monitoring contractors (if applicable) understand eligibility requirements for the debris removal operations. • Ensure that only eligible debris quantities are being claimed for Public Assistance. • Resolve issues or discrepancies associated with the contract.
State (Grantee)	Ensure grant requirements outlined in the 44 CFR are being met and that PA applicants are receiving funds for eligible costs. Responsible for monitoring the grant and subgrant to ensure compliance with Federal, State and local laws and regulations.	• Monitor the grant and subgrant requirements. • Ensure that the applicant is sufficiently monitoring the debris removal operation (FEMA\Grantee effort). • Conduct random monitoring at load sites and disposal sites to ensure compliance with grant requirements (FEMA\Grantee effort). • Notify subgrantee of compliance issues and outline corrective actions (FEMA\Grantee effort).
FEMA	Ensure grant requirements outlined in 44 CFR are being met. Fund eligible work. Responsible for the preparation of large project worksheets, development of the	• Develop large project worksheets in coordination with the Grantee and subgrantee. • Utilize monitors to ensure that the applicant is sufficiently monitoring the debris removal operation. (FEMA\Grantee effort)

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	scope of work and the obligation of funds. Responsible for monitoring the grant to ensure compliance with Federal, State and local laws and regulations.	• Conduct random monitoring at load sites and disposal sites to ensure compliance with grant requirements. (FEMA\Grantee effort). • Notify Grantee/subgrantee of compliance issues and outline corrective actions (FEMA\Grantee effort). • Increase or decrease monitoring efforts as necessary to ensure corrective actions are in place and operations are being effectively monitored.

The specific responsibilities and duties of individual debris monitors in the field are the same for both force account and contracted debris monitoring operations. They are:

- Report issues to their direct supervisor which require action (such as safety concerns, contractor non-compliance and equipment use)
- Accurately measure and certify truck capacities (recertify on a regular basis)
- Properly and accurately complete and physically control load tickets (in tower and field)
- Ensure that trucks are accurately credited for their load
- Ensure that trucks are not artificially loaded (ex: debris is wetted, debris is fluffed-not compacted)
- Validate hazardous trees, including hangers, leaners, and stumps
- Ensure that hazardous wastes are not mixed in loads
- Ensure that all debris is removed from trucks at Debris Management Sites (DMS)
- Report if improper equipment is mobilized and used
- Report if contractor personnel safety standards are not followed
- Report if general public safety standards are not followed
- Report if completion schedules are not on target
- Ensure that only debris specified in the contract is collected (and is identified as eligible or ineligible)
- Assure that force account labor and/or debris contractor work is within the assigned scope of work
- Monitor site development and restoration of DMSs
- Report to supervisor if debris removal work does not comply with all local ordinances as well as State and Federal regulations (i.e., proper disposal of hazardous wastes)
- Record the types of equipment used (Time & Materials contract)
- Record the hours equipment was used, include downtime of each piece of equipment by day (Time & Materials contract)

Applicants may request FEMA/State assistance with debris monitoring or monitor training.

Only FEMA has the authority to make eligibility decisions; contractors cannot make eligibility determinations. Information on eligibility can be found in the Public Assistance Debris Management Guide FEMA 325, the Public Assistance Policy Digest FEMA 321, the Public Assistance Applicant Handbook FEMA 323, and the Public Assistance Guide FEMA 322.

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Monitoring Requirements by Type of Contract

Unlike other categories of work eligible for Public Assistance grants, initial debris removal project worksheets typically do not have a defined scope of work, since precise quantities of debris are difficult to attain. Therefore, unit price contracts which pay by debris volume or weight removed are typically implemented. Unit price contracts require extensive monitoring to determine accurate quantities of eligible debris removed and disposed. As load tickets are compiled and accurate quantities are determined through monitoring, the scope of work for the project worksheet, or version, is established.

In some cases, time and materials contracts may be more cost effective and appropriate for the amount and type of eligible work to be performed. For both time and materials and lump sum contracts, debris monitors must still document and quantify eligible debris amounts in order to determine reasonableness of costs.

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The table below includes a breakdown of monitoring requirements by contract type.

Type of Contract	Project Worksheet Scope of Work	Subgrantee Monitoring Required					Comments
		Crew Efficiency	Load Site	DMSs	Disposal Sites	Fraud	
Lump Sum	Defined debris quantities and reasonable costs. Estimate is basis for contract costs.		√		√		Quantities are still required to determine reasonable costs.
Unit Price - CYs	Based on eligible debris listed on load tickets	√	√	√	√	√	
Unit Price - Ton	Based on actual weight measurements of eligible debris listed on load tickets.		√		√	√	
Time and Materials	Based on labor, equipment and materials records. Reasonable costs evaluated by determining costs per unit.	√	√		√	√	Typically used for road clearance. If used for debris removal, quantities are still required to determine reasonable costs. Eligible costs are restricted to up to 70 hours.

Monitoring Contracts

The request for proposal (RFP) for debris monitoring contracts should outline the qualification of debris monitors. The qualifications should be appropriate for the individual responsibilities and duties listed above, and debris monitors should have experience working on construction sites and be familiar with safety regulations. It is not necessary to have professional engineers and other certified professionals perform these duties. Debris monitors primarily should have the ability to estimate debris quantities, differentiate between debris types, properly fill out load tickets, and follow all site safety procedures.

The RFP should also outline possible locations to be monitored and reporting requirements to document eligible debris quantities.

Monitoring contracts are typically time and materials and must contain a ***not-to-exceed*** clause per the requirements of Part 13 of 44 CFR. The subgrantee should ensure the level of monitoring and overhead claimed is commensurate with the level of effort required to effectively monitor

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the debris removal and monitoring operation. In addition to the costs for the monitors, the subgrantee can claim as part of its monitoring project worksheet reasonable costs for the debris monitoring contractor to provide training, oversight, and data compilation as required by the terms of the contract. Architectural and engineering service overhead should not be claimed. Additional information on costs that are eligible can be found in the *Public Assistance Debris Management Guide FEMA 325.*

The monitoring contractor costs associated with compiling data to verify costs invoiced by the debris removal contractor can be an eligible expense. Costs associated with attending meetings with FEMA and/or the Grantee and compiling documentation for the production of project worksheets are funded through the administrative allowance as stated in 44 CFR, Part 206.228 and cannot be a direct charge to a Public Assistance grant.

Reporting Requirements & Performance Measures

If FEMA is providing grant assistance for the applicant's monitoring contract, a sample of the reporting requirements outlined in the contract will be required to substantiate the eligible costs. This sample must be adequate to demonstrate that sufficient measures were taken to ensure eligibility and accurate quantities are being reported as part of the grant. Applicants should require debris monitors to submit daily reports on load quantities, debris management site operations, and operational and safety issues in the field. Regular reporting helps to promote quality assurance and provides the applicant with a consistent accounting of operations in the field.

If a time and materials monitoring contract is used, the contractor will have to supply labor, equipment and material records to the subgrantee in order to substantiate the actual costs in the project worksheet.

Continuous monitoring of all activities of a debris contractor can help promote efficiency and effectiveness in the debris removal operation. In evaluating a contractor's performance, primary interest is in the progress toward completion of the services called for and the financial status of the contract. It is important that the contract provide for submission of reports and payment estimates to aid in evaluating the contractor's progress.

Applicant debris monitoring responsibilities may include tracking performance measures used to assess the progress of debris removal operations in the field. Specific debris contract performance measures may include:

- Percentage completion tracking
- Adherence to contract time schedules
- Adherence to contract cost schedules

Contract Procurement Requirements

To be eligible for reimbursement under the Public Assistance Program, contracts for debris monitoring must meet rules for Federal grants, as provided for in 44 CFR Part 13.36 Procurement (http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html). Public

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Assistance applicants should comply with their own procurement procedures in accordance with applicable State and local laws and regulations, provided that they conform to applicable Federal laws and standards identified in Part 13.

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APPENDIX CC: USACE Hurricane Debris Estimating Model

Background

The U.S. Army Corps of Engineers (USACE) Emergency Management staff has developed a modeling methodology designed to forecast potential amounts of hurricane-generated debris. This model is also used for tornadoes as rated on the Fujita Scale, with corresponding wind speeds. This model is based on actual data from Hurricanes Frederic, Hugo and Andrew.

The estimated quantities produced by the model have a predicted accuracy of +/-30%. The primary factor used by the model is the number of households in a developed urban/suburban area. Other factors utilized are:

- *Cubic Yards of Debris Generated per Household per Storm Category.* Household debris includes damage to the house, contents, and surrounding shrubs/trees.
- *Vegetative Cover.* Vegetative cover includes all trees and shrubbery located along public rights-of-way, parks, and residential areas.
- *Commercial Density.* Commercial density includes debris generated by damage to businesses and industrial facilities. Private contractors will remove the majority of commercial related debris; however, disposal/reduction space is still required.
- *Precipitation.* Very wet storms will cause ground saturation, increasing tree fall.

Initial Planning Data

For planning purposes, the worst-case scenario should be used for the subject area. The most accurate process is to determine the defined areas by using Doppler Radar (National Weather Service Broadcasts) and Geographical Information Systems (GIS). Doppler radar will define the hurricanes intensity and the exact track of the eye of the storm, or the tornado track, in relation to the affected area.

For hurricanes, track the storm and plot the eye path and 5-mile wide bands out from the eye to define area and estimate wind speeds. The wind speed of the eye wall normally determines the reported storm category with the outward or 5-mile bands being a lesser category. Tornado wind speed may not immediately be determined. Initial debris reports may be relied upon to give estimates of wind speed. Divide outlined areas by storm category or if multiple tornadoes have occurred. Enter coordinates into a GIS database, when possible, to determine areas and demographic information, such as population, school locations, and land use (business, farm, and residential areas).

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Step 1 – Estimating Debris Quantities

The formula used in this model will generate debris quantity as an absolute value based on a known/estimated population or a debris quantity per square mile based upon population density per square mile:

The Model Formula: Q = H (C)(V)(B)(S), where:

- **Q** is the quantity of debris in cubic yards**,**
- **H** is the number of households,
- **C** is the storm category factor in cubic yards,
- **V** is the vegetation characteristic multiplier,
- **B** is the commercial/business/industrial use multiplier, and
- **S** is the storm precipitation characteristic multiplier.

H is the number of households in a given location. Determine population (**P**) in the affected area. Known/estimated population (P) for a jurisdiction may be used to determine a value for H or **H = P/3**.

C is the storm category factor as shown below. It expresses debris quantity in cubic yards (cy) per household by hurricane category and includes the house, its contents, and land foliage. Note that tornadoes with corresponding wind speeds are listed.

Hurricane Category	Tornado Category	Value for "C" Factor
1	F1	2 cy
2	F1	8 cy
3	F2	26 cy
4	F2	50 cy
5	F3 or greater	80 – 100 cy

V is the vegetation multiplier as shown below. It acts to increase the quantity of debris by adding vegetation, including shrubbery and trees, on public rights-of-way.

Vegetative Cover	Value of "V" Multiplier
Light – new development more ground visible than trees	1.1
Medium – uniform pattern of open space and tree canopy (most common)	1.3
Heavy – mature neighborhoods and woodlots; house/ground cannot be see for trees	1.5

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B is the multiplier that takes into account areas that are not solely single-family residential, but includes small retail stores, schools, apartments, shopping centers, and light industrial/manufacturing facilities. Built into this multiplier is the offsetting commercial insurance requirement for owner/operator salvage operations.

Commercial Density	Value of "B" Multiplier
Light	1.0
Medium	1.2
Heavy	1.3

S is the precipitation multiplier that takes into account either a "wet" or "dry" storm event. A "wet" storm for category 3 or greater storms will generate more vegetative debris due to the uprooting of complete trees.

Precipitation Characteristic	Value of "S" Multiplier
None to Light	1.0
Medium to Heavy	1.3

NOTE: Steps 2 and 3 of this model can also be applied to other debris generating events once an estimated quantity of debris is established.

Step 2 – Debris Storage Site Requirements

Estimate a debris pile stack height of 10 feet and assume that 60% of the site's land area is used to accommodate roads, safety buffers, burn pits and household hazardous waste.

Debris Storage.

Volume = Area x Height

Area of 1 acre = 4,840 square yards (sy)

Height of 10 feet = 3.33 yards (yd)

Maximum Storage Volume per Acre = 4,840 sy/acre x 3.33 yd

Maximum Storage Volume per Acre = 16,117 cubic yards/acre

Site Area. To provide for roads, safety buffers, etc., the acreage must be increased.

Area of 640 acres = 1 square mile (sm)

The number of sites needed depends on:

- the size of each site,
- the distance between the site and the debris source,
- the speed of volume reduction (mixed debris is slower than clean woody debris), and
- the time it takes to remove processed debris off of the site.

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Step 3 – Categories of Debris

Debris removed will consist of two broad categories: clean wood debris and construction and demolition (C & D) debris. The clean debris will come early in the removal process as residents and government entities, including the City, clear yards and rights-of-way. The debris removal mission can be facilitated if debris is segregated as much as possible at the origin along the right-of-way, according to type. The public should be informed regarding debris segregation as soon as possible after the storm. Time periods should be set for removal: the first 7-10 days clean woody debris only, then other debris, with the metals segregated from non-metals. Most common hurricane- and tornado-generated debris will consist of the following: 30% clean woody debris and 70% mixed C&D debris. Of the 70% mixed C&D, 42% is burnable but requires sorting, 5% is soil, 15% is metal, and 38% is other material that will require landfilling.

Burning will produce about 95% volume reduction. Chipping and grinding reduce the debris volume on a 4-to-1 ratio (4 cy is reduced to 1 cy) or by 75%. The rate of burning is basically equal to the rate of chipping/grinding, about 200 cy/hr. However, chipping requires on-site storage and the disposal of the chips/mulch.

https://eportal.usace.army.mil/sites/ENGLink/DebrisManagement/Operational%20Guidance/link%204%20-%20debris%20modeling%20estimating%20debris%20quantities.swf

The USACE's *Enhanced Tools and Techniques to Support Debris Management in Disaster Response Missions* may be accessed at:

http://el.erdc.usace.army.mil/elpubs/pdf/trel09-12.pdf

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APPENDIX DD: Provisions for Debris Removal on Private Property

N.C. General Statute §§ 160A 174 through 176, inclusively; 160A-193, Chapter 160A Parts 5 and 6

Chapter 14: Buildings and Building Regulations

Article II. Minimum Housing Standards

Sections 14-44 through 14-47

Article IV. Unsafe Building Standards

Sec. 14-85. Defects in buildings to be corrected.

When a city zoning enforcement officer or fire inspector finds any defects in a building, or finds that the building has not been constructed in accordance with the applicable state and local laws, or that a building because of its condition is dangerous or contains fire hazardous conditions, it shall be his duty to notify the owner or occupant of the building of its defects, hazardous conditions, or failure to comply with law. The owner or occupant shall each immediately remedy the defects, hazardous conditions, or violations of law in the property he owns.

(Ord. No. 04-26, § 1, 5-13-2004)

Sec. 14-86. Unsafe buildings condemned.

(a) *Residential building and nonresidential building or structure.* Every building that shall appear to the city zoning enforcement officer or fire inspector to be especially dangerous to life because of its liability to fire or because of bad condition of walls, overloaded floors, defective construction, decay, unsafe wiring or heating system, inadequate means of egress, or other causes, shall be held to be unsafe, and the city zoning enforcement officer or fire inspector shall affix a notice of the dangerous character of the structure to a conspicuous place on the exterior wall of the building.

(b) *Nonresidential building or structure.* In addition to the authority granted in subsection (a) of this section, a city zoning enforcement officer or fire inspector may declare a nonresidential building or structure within a community development target area to be unsafe if it meets both of the following conditions:

(1) It appears to the city zoning enforcement officer or fire inspector to be vacant or abandoned.

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(2) It appears to the city zoning enforcement officer or fire inspector to be in such dilapidated condition as to cause or contribute to blight, disease, vagrancy, fire or safety hazard, to be a danger to children, or to tend to attract persons intent on criminal activities or other activities that would constitute a public nuisance.

(c) If a city zoning enforcement officer or fire inspector declares a nonresidential building or structure to be unsafe under subsection (b) of this section, the city zoning enforcement officer or fire inspector must affix a notice of the unsafe character of the structure to a conspicuous place on the exterior wall of the building. For the purposes of this section, the term "community development target area" means an area that has characteristics of a development zone under G.S. 105-129.3A, a "nonresidential redevelopment area" under G.S. 160A-503(10), or an area with similar characteristics designated by the city council as being in special need of revitalization for the benefit and welfare of its citizens.

(Ord. No. 04-26, § 1, 5-13-2004)

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Sec. 14-87. Removing notice from condemned building.

If any person shall remove any notice that has been affixed to any building or structure by a city zoning enforcement officer or fire inspector and that states the dangerous character of the building or structure, he shall be guilty of a Class 1 misdemeanor.

(Ord. No. 04-26, § 1, 5-13-2004)

Sec. 14-88. Action in event of failure to take corrective action.

If the owner of a building or structure that has been condemned as unsafe pursuant to G.S. 160A-426 shall fail to take prompt corrective action, the city zoning enforcement officer or fire inspector shall give him written notice, by certified or registered mail to his last known address or by personal service,

(1) That the building or structure is in a condition that appears to meet one or more of the following conditions:

   a. Constitutes a fire or safety hazard.

   b. Is dangerous to life, health, or other property.

   c. Is likely to cause or contribute to blight, disease, vagrancy, or danger to children.

   d. Has a tendency to attract persons intent on criminal activities or other activities that could constitute a public nuisance.

(2) That a hearing will be held before the city zoning enforcement officer or fire inspector at a designated place and time, not later than ten days after the date of the notice, at which time the owner shall be entitled to be heard in person or by counsel and to present arguments and evidence pertaining to the matter; and

(3) That following the hearing, the city zoning enforcement officer or fire inspector may issue such order to repair, close, vacate, or demolish the building or structure as appears appropriate. If the name or whereabouts of the owner cannot after due diligence be discovered, the notice shall be considered properly and adequately served if a copy thereof is posted on the outside of the building or structure in question at least ten days prior to the hearing and a notice of the hearing is published in a newspaper having general circulation in the city at least once not later than one week prior to the hearing.

(Ord. No. 04-26, § 1, 5-13-2004)

Sec. 14-89. Order to take corrective action.

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If, upon a hearing held pursuant to the notice prescribed in G.S. 160A-428, the city's city zoning enforcement officer or fire inspector shall find that the building or structure is in a condition that constitutes a fire or safety hazard or renders it dangerous to life, health, or other property, he shall make an order in writing, directed to the owner of such building or structure, requiring the owner to remedy the defective conditions by repairing, closing, vacating, or demolishing the building or structure or taking other necessary steps, within such period, not less than 60 days, as the city zoning enforcement officer or fire inspector may prescribe; provided, that where the city zoning enforcement officer or fire inspector finds that there is imminent danger to life or other property, he may order that corrective action be taken in such lesser period as may be feasible.

(Ord. No. 04-26, § 1, 5-13-2004)

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Sec. 14-90. Appeal; finality of order if not appealed.

Any owner who has received an order under G.S. 160A-429 may appeal from the order to the city council by giving notice of appeal in writing to the city zoning enforcement officer or fire inspector and to the city clerk within ten days following issuance of the order. In the absence of an appeal, the order of the city zoning enforcement officer or fire inspector shall be final. The city council shall hear and render a decision in an appeal within a reasonable time. The city council may affirm, modify and affirm, or revoke the order.

(Ord. No. 04-26, § 1, 5-13-2004)

Sec. 14-91. Failure to comply with order.

If the owner of a building or structure fails to comply with an order issued pursuant to G.S. 160A-429 from which no appeal has been taken, or fails to comply with an order of the city council following an appeal, he shall be guilty of a Class 1 misdemeanor.

(Ord. No. 04-26, § 1, 5-13-2004)

Sec. 14-92. Enforcement.

(a) Whenever any violation is denominated a misdemeanor under the provisions of this article, the city, either in addition to or in lieu of other remedies, may initiate any appropriate action or proceedings to prevent, restrain, correct, or abate the violation or to prevent the occupancy of the building or structure involved.

(b) In the case of a nonresidential building or structure declared unsafe under G.S. 160A-426, a city may, in lieu of taking action under subsection (a), cause the building or structure to be removed or demolished. The amounts incurred by the city in connection with the removal or demolition shall be a lien against the real property upon which the cost was incurred. The lien shall be filed, have the same priority, and be collected in the same manner as liens for special assessments provided in Article 10 of G.S. Chapter 160A. If the building or structure is removed or demolished by the city, the city shall sell the usable materials of the building and any personal property, fixtures, or appurtenances found in or attached to the building. The city shall credit the proceeds of the sale against the cost of the removal or demolition. Any balance remaining from the sale shall be deposited with the clerk of superior court of the county where the property is located and shall be disbursed by the court to the person found to be entitled thereto by final order or decree of the court.

(c) *Additional lien.* The amounts incurred by the city in connection with the removal or demolition shall also be a lien against any other real property owned by the owner of the building or structure and located within the municipal limits or within one mile of the

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municipal limits, except for the owner's primary residence. The provisions of subsection (b) of this section apply to this additional lien, except that this additional lien is inferior to all prior liens and shall be collected as a money judgment.

(d) Nothing in this section shall be construed to impair or limit the power of the city to define and declare nuisances and to cause their removal or abatement by summary proceedings, or otherwise.

(e) No administrative fee shall be charged for the first inspection following an order to repair, alter or improve or to vacate and close, or to demolish a dwelling in order to ascertain compliance with inspection orders. For each inspection, beginning with the second inspection, an administrative fee shall be assessed as written in the annual adopted budget ordinance.

(f) In addition to other penalties, any person who shall commit a violation of article IV, chapter 14 of the City Code, and receives official notice from the city of said violation and fails to remedy said violation within the time period specified, after the hearing, such that a housing code violation citation is issued, shall be subject to an administrative fee as written in the annual adopted budget ordinance.

(g) In addition to any other charge, any owner of an unsafe building(s) shall be subject to an administrative fee, as written in the annual adopted budget ordinance, upon any additional inspection hearings disclosing the building to be unsafe due to any defects defined in this article or G.S. 160A-426 within the same 12-month period beginning on the date of the violation and ending on the same date in the following year. The property owner may also be assessed any costs incurred in obtaining service including legal publication of notice of complaint charges, hearing notice and findings of fact and orders related to the dwelling.

(Ord. No. 04-26, § 1, 5-13-2004; Ord. No. 05-54, § 3, 6-28-2005; Ord. No. 07-85, § 3, 9-13-2007)

Sec. 14-93. Records and reports.

The code enforcement division of the police department shall keep complete and accurate records in convenient form of all applications received, permits issued, inspections and reinspections made, defects found, certificates of compliance granted, and all other work and activities of the department. These records shall be kept in the manner and for the periods prescribed by the North Carolina Department of Cultural Resources. Periodic reports shall be submitted to the city council and to the commissioner of insurance as they shall by ordinance, rule, or regulation require.

(Ord. No. 04-26, § 1, 5-13-2004; Ord. No. 07-85, § 3, 9-13-2007)

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Sec. 14-94. Appeals in general.

Unless otherwise provided by law, appeals from any order, decision, or determination by a member of the city planning and community development department pertaining to the State Building Code or other state building laws shall be taken to the commissioner of insurance or his designee or other official specified in G.S. 143-139, by filing a written notice with him and with the planning and community development department within a period of ten days after the order, decision, or determination. Further appeals may be taken to the State Building Code Council or to the courts as provided by law.

(Ord. No. 04-26, § 1, 5-13-2004)

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Chapter 30: Environment

Article IV. Nuisances*

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***State law references:** Mosquito and vector control program, G.S. 130A-346 et seq.; pesticides, G.S. 143-434 et seq.; power of city to abate public health nuisances, G.S. 160A-193; powers and duties of local health director, G.S. 130A-41.

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DIVISION 1. GENERALLY

Secs. 30-121 – 30-140. Reserved.

DIVISION 2. RESERVED*

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***Editor's note:** Ord. No. 05-81, § 3, adopted Sept. 9, 2005, repealed div. 2, §§ 30-141--30-144, in its entirety. Formerly, said division pertained to rodent control as enacted by Code 1987, §§ 3-86--3-89.

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Secs. 30-141--30-160. Reserved.

DIVISION 3. RUBBISH, UNHEALTHY SUBSTANCES AND WEED CONTROL

Sec. 30-161. Premises to be kept clean.

(a) *[Nuisance declared]*. The following enumerated and described conditions are hereby found deemed and declared to constitute a detriment, danger and hazard to the health, safety, morals, and general welfare of the inhabitants of the city and are found, deemed and declared to be public nuisances wherever the same may exist and the creation, maintenance, or failure to abate any nuisances is hereby declared unlawful:

(1) Any condition which is a breeding ground or harbor for mosquitoes or a breeding ground or harbor for rats or other pests; or

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(2) Is a place of heavy growth of weeds or grasses over eight inches in height which abut any open street or which lie next to any adjoining property line which contains a structure; or is a place of heavy growth of weeds or grasses over eight inches in height which lies next to any occupied dwelling; provided that the nuisance defined by this subsection (b) shall be cleared and cut not less than three inches in height; or

(3) Is a place of vines, shrubs, or other vegetation over eight inches in height (not including wooded areas) when:

a. Such vines or vegetation lie next to any adjoining property line and when such conditions are not located within a floodplain or not located on any slope that is steeper than three to one (horizontal to vertical), which has ground cover planted specifically for erosion purposes, and when such condition is causing a breeding ground for rodents and a hazard detrimental to public health; or

b. Such vines, shrubs, or vegetation are a focal point for any other nuisance enumerated in this Code; provided that the nuisance herein defined by this subsection (c)(2) shall be cleared and cut only when it is necessary to abate any other nuisance described in this section; or

(4) Is a place of growth of poison sumac (Rhus vernix), poison ivy (Rhus radicans), or poison oak (Rhus toxicodendron) and other noxious vegetation; or

(5) Is an open place of collection of stagnant water where insects tend to breed; or

(6) Any concentration of combustible items such as mattresses, boxes, paper, automobile tires and tubes, garbage, trash, refuse, brush, old clothes, rags, or any other combustible materials or objects of a like nature; or

(7) Any concentration of building materials including concrete, steel or masonry which are not suitable for building construction, alterations or repairs, and which are in open places; or

(8) Is an open place of collection of garbage, food waste, animal waste, or any other rotten or putrescible matter of any kind; however, nothing in this subsection shall be construed to prevent the generally accepted use of a properly maintained compost pile or storage of animal manure being used as fertilizer for lawns and gardens and for other agricultural or horticultural purposes; or

(9) Grass, trimmings less than 12 inches in length, and leaves or other yard waste or vegetative materials placed for pick up in any manner other than in untied clear plastic or untied paper biodegradable bags weighing less than 35 pounds each; or

(10) Privies; or

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(11) Hides, dried or green; provided the same may be kept for sale in the city when thoroughly cured and odorless; or

(12) Any household or office furniture, appliances, or other metal products of any kind or kept in open places; or

(13) Any products which have jagged edges of metal or glass or areas of confinement which are kept in open places; or

(14) Any open place of concentration of discarded bottles, cans or medical supplies; or

(15) Any improper or inadequate drainage on private property which causes flooding, interferes with the use of, or endangers in any way the streets, sidewalks, parks or other city-owned property of any kind; provided, the notices required and powers conferred by this chapter by and on the police department in abating these types of nuisances shall be given and exercised by the department of stormwater services in accordance with the provisions of chapter 60, article IV, stormwater quality control and management; or in the alternative, the powers shall be delegated to the city manager and designee(s); or

(16) Any condition which blocks, hinders or obstructs, in any way the natural flow of branches, streams, creeks, surface waters, ditches or drains; or

(17) Any collection of water for which no adequate natural drainage is provided and which is or is likely to become a nuisance and a menace to health; or

(18) Any stormwater retention or impoundment device which is operating improperly; or

(19) Any condition whereby any person owning or having the legal control of any land within the corporate limits of the city maintains or permits upon any such land any fence, sign, billboard, shrubbery, bush, tree, mailbox, or other object or combination of objects which obstructs the view of motorists using any street, private driveway, or approach to any street intersection adjacent to and abutting such land so as to constitute a traffic hazard as a condition dangerous to public safety upon any such street, private driveway, or at any such street intersection; or

(20) Nuisance vehicle violation(s) as defined by chapter 14, article III, junk vehicles, of this Code; provided, the process for abating the nuisance vehicle shall be as provided for in article III, junk vehicles, of this Code;

(21) Any other condition specifically declared to be a danger to the public health, safety, morals, and general welfare of inhabitants of the city and public nuisance by the division of code enforcement.

(b) *Graffiti.*

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(1) *Graffiti defined.* Graffiti means any inscription, work, writing, drawing, figure, mark of paint, ink, chalk, dye or other similar substance, etching, engraving or other defacement (collectively "defacement") on a public or private building, sidewalks, streets, structures, or places. Graffiti shall include drawings writings, markings or inscriptions regardless of the content or the nature of materials used in the commission of the act.

(2) *Exemption.* Graffiti shall not include temporary, easily removable chalk or other water soluble markings on public or private sidewalks, streets or other paved surfaces which are used in connection with traditional children's activities such as drawings, bases for games, hopscotch or similar activities, nor shall it include temporary, easily removable chalk or other water soluble markings used in connection with any lawful business or public purpose activity.

(3) *Graffiti prohibited.* It shall be unlawful for any person to write, paint inscribe scrawl, spray, place, draw or otherwise cause graffiti to be placed on any public or private building, structure, street, sidewalk, or any other real or personal property. Any person convicted of a violation of this paragraph shall be guilty of a misdemeanor and fined not less than $250.00 for a first offense and $500.00 for any second and subsequent offenses.

(4) *Removal of graffiti.* It shall be unlawful for any person owning property, acting as manager or agent for the owner of property or in possession or control of property to fail to remove or effectively obscure any graffiti upon such property. Failure to remove or effectively obscure any graffiti upon such property within five days of the date of receipt of written notice of the graffiti shall result in civil penalties in the amount of $100.00 per day until such time as the graffiti is completely removed or obscured.

(5) *Restitution.* In addition to any other punishment imposed, the court shall order any person convicted of this section to make restitution to the victim for damages or losses suffered by the victim as a result of the offense. The terms, conditions and amount of restitution shall be determined by the court.

(6) *Removal of graffiti by city.* Whenever the city becomes aware of the existence of graffiti on any property, the city is authorized to remove the graffiti as set forth in this section. The city shall give written notice to remove or effectively obscure the graffiti within five days of the date of the notice, to all property owners as shown in the Cabarrus County Registry and to any other person known or thought to be in possession or control of the property. Notice shall be given by personal service or certified mail. All notices shall state the procedure for appeal.

(7) *Costs and liens.* If the property owner or person in control or possession of the property fails to remove or effectively obscure the graffiti within five days of the date

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of the notice, the city may enforce this section and may cause the graffiti to be removed or effectively obscured and charge the property owner or person in control or possession of the property for the expenses incurred by the city. The city may sue in a court of competent jurisdiction to recover all such expenses including but not limited to administrative costs, attorney's fees and all actual costs related to such enforcement. The city may, separately or in conjunction with any such lawsuit, file a lien in the public records for all such expenses and the lien shall bear interest from the date of filing.

(8) *Appeal procedure.* Appeal of the code enforcement decision shall be made in writing by the property owner or person in possession or control or the property to the chief of police within five days of the date of the notice sent or posted by the city. The chief of police shall review the matter and issue a written decision within seven days of the date of receipt of the written request for appeal. Appeals from the decision of the chief of police shall be to the city council or its designee in writing by the property owner or person in control or possession of the property within five days of the date of mailing the decision of the chief of police to the appellant. If the party requesting the appeal requests a hearing, the hearing shall be scheduled at the next scheduled regular meeting of the city council. If city council or its designee determines that the graffiti must be removed, the city council or its designee may set a new deadline date for compliance or authorize the city to proceed to remove or obscure the graffiti. The city shall not remove or obscure any graffiti during the pendency of an appeal. All written requests for appeal shall state the reasons for the appeal.

(9) *Emergency removal.* If the city determines that any graffiti is a danger to the health, safety or welfare of the public and is unable to provide personal service after at least two attempts to do so, 48 hours after either (i) mailing of notice described in subsection (5) about by certified mail or (ii) posting notice on the building or structure in a conspicuous manner, the city may proceed to remove or cause the graffiti to be removed or obscured at its expense.

(10) *Repair/restoration.* The city shall not be required to paint or repair any area on which graffiti was obscured or removed beyond that where the graffiti itself was located. The city shall not be required to restore the obscured area to its original condition, nor shall the city be required to match paint colors, finishes or textures in any manner whatsoever. However, if the city manager determines that painting or repair of a more extensive area is necessary in order to avoid an aesthetic disfigurement to the neighborhood or community, the city, or its designee is authorized to perform the necessary work. If more extensive work is performed, the property owner shall be liable only for the cost of that portion of work necessary to remove or obscure the graffiti.

(c) *Notice; failure to comply; removal; cost.*

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(1) If the authorized enforcement officer or designee shall have probable cause to expect a violation of this division, they shall have the right to enter on any premises within the city ordinance-making jurisdiction at any reasonable hour in order to determine if any premises or real property is in violation of this division.

(2) If any person violates the provisions of subsection (a) of this section, it shall be the duty of the authorized enforcement officer to give written notice by personal delivery or by simultaneous mailing both by first class mail and by registered mail, return receipt requested, to the owner or person in possession of such premises that within five days from the receipt of such notice, all weeds, trash and other offensive animal or vegetable matter, must be removed from such premises. If the name and mailing address of the registered owner or person entitled to the possession of such premises cannot be ascertained in the exercise of reasonable diligence, the enforcement officer shall retain written record to show reasonable diligence.

(3) If any owner or occupant fails to comply with the notice, the authorized enforcement officer shall proceed to have the offensive matter removed, and such owner or occupant shall be responsible to the city for the cost of removal, as specified in G.S. 160A-193. Such cost of removal shall constitute a lien upon such premises and shall be collected in the same manner as taxes upon real estate.

(Code 1987, §§ 10-2, 10-3; Ord. No. 05-81, § 2, 9-8-2005; Ord. No. 08-56, § 1, 6-12-2008; Ord. No. 08-75, § 1, 7-10-2008; Ord. No. 09-07, § 1, 2-12-2009)

State law references: Municipal abatement of public health and public safety nuisances, G.S. 160A-193; plant pests, G.S. 106-419 et seq.

Sec. 30-162. Burning regulated.

It shall be unlawful to burn or set fire to any garbage for the purpose of disposal. In addition, it shall be unlawful to burn any refuse for the purpose of disposal unless a permit therefor has been granted by the fire chief.

(Code 1987, § 10-4)

Sec. 30-163. Schedule for cutting weeds; failure to comply.

(a) It shall be unlawful for every owner or person of a property of a vacant lot within the corporate limits to fail to cut grass, weeds and other overgrowth vegetation or other noxious growth from the property. It shall be the duty of the owner to cut and remove grass, weeds and other overgrowth vegetation which is in excess of 12 inches in height. Such cutting or mowing shall reduce the height to not more the six inches.

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(1) Vacant lots adjacent to the improved property, except as defined as heavily wooded, shall be cut in their entirety at least three times per year during the growing season, the first not later than May 15, the second no later than July 15 and the third no later than October 15.

(2) Heavily wooded lots are exempt from this section.

(b) If any person violates the provisions of subsection (a) of this section, it shall be the duty of the zoning administrator or his designee to give written notice by registered mail, return receipt requested, to the owner of such vacant lot that within ten days from the mailing of such notice, all grass, weeds and other overgrowth vegetation which in excess of 12 inches in height must be cut.

(c) If the owner fails to comply with the notice, the zoning administrator or designee shall proceed to have the weeds or noxious growth cut and the owner of such lot shall be responsible to the city for the cost of such cutting.

(d) The cost of cleaning the lot by city personnel shall be a minimum as set from time to time and on file at the city clerk's office. Lots requiring more than one hour to mow shall be charged the minimum cost, plus an amount per hour as set from time to time and on file at the city clerk's office for each hour or its portion to mow the lot. In the alternative, the city, at its option, may arrange for a private contractor to clean the lot. The actual cost incurred by the city under such a contract agreement shall be charged to the owner of such a lot.

(e) The city's finance department shall bill the property owner for the cost of the lot cleaning either by city personnel or private contractor, and such cost shall constitute a lien upon the premises and be collected in the same manner as taxes upon real estate, as specified in G.S. 160A-193. Further, such lien may be filed as a lis pendens in the office of the register of deeds of the county.

(Code 1987, § 10-5)

Sec. 30-164. Reserved.

Editor's note: Ord. No. 05-81, § 3, adopted Sept. 9, 2005, repealed § 30-164 in its entirety. Formerly, § 30-164 pertained to stagnant water; other unhealthy matter as enacted by Code 1987, § 10-6.

Sec. 30-165. Reserved.

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Editor's note: Ord. No. 05-81, § 3, adopted Sept. 9, 2005, repealed § 30-165 in its entirety. Formerly, § 30-165 pertained to weeds and noxious growth near streets as enacted by Code 1987, § 10-7.

Sec. 30-166. Throwing upon street and embankments.

It shall be unlawful for any person to throw, deposit or otherwise cause to be thrown or deposited in or on the streets of the city or any embankment that is a part of a street, any tin cans, iron buckets, barrel hoops, bottles, glass, brush or trash.

(Code 1987, § 10-9)

Cross references: Solid waste, ch. 46; streets, sidewalks and other public places, ch. 50.

Sec. 30-167. Sweeping onto streets and ditches.

It shall be unlawful for any person to sweep or empty any store or office sweepings, papers or trash of any kind or place any brush, leaves, grass or other sweepings or cleanings of a yard or lot on any pavement or on any street, ditch, or waterway within the corporate limits of the city.

(Code 1987, § 10-10)

Cross references: Streets, sidewalks and other public places, ch. 50.

Sec. 30-168. Responsibility of owner for standing stagnant water.

(a) Every owner and every person in possession of any lake, pond, pool or other body of water maintained and used for manufacturing, commercial, recreation or any other purpose, shall keep the same free from stagnation and free from the accumulation therein of debris of every kind and in such condition at all times that the lake, pond, pool or other body of water will not be dangerous to public health.

(b) It shall be unlawful to maintain or permit to remain on any premises any lake, pond, pool or other standing water which is wholly or partly stagnant, or which is liable to breed mosquitoes unless the water is treated and maintained in such manner as to avoid a risk to public health.

(c) It shall be unlawful to allow water to pond continuously on any premises except where such ponding is allowed or caused for some useful purpose. Wherever water ponds on any premises, not for some useful purpose but in such a way as to constitute a nuisance, the owner and person in possession thereof shall either provide proper drainage there for or shall fill up such portion of the premises as is covered by such water; provided that where

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the premises are filled up, natural drainage through the lot shall not be obstructed, provisions being made if necessary for drainage through such portion of such premises by means of underground waterways. In any case where it is impracticable by means of an open ditch or ditches to keep any premises drained in such way as to prevent the ponding of water and the creation of a menace to health, the owner and the person in possession of such premises shall sub drain such premises with drain tiles.

(d) It shall be unlawful to use any stream or watercourse to carry off water from any kitchen sink, bathtub or privy, or to carry off any fluid of an offensive or dangerous nature. No water or refuse from any industrial, commercial or institutional process, including uncontaminated water used for heating or cooling, shall be discharged in any stream or watercourse by any person until such person has obtained the appropriate local, state and federal permits.

(e) Notice to abate; abatement by city. If any person shall violate the provisions of this section, it shall be the duty of the zoning enforcement officer or designated representative to give notice to the owner or to any person in possession of the subject property, as directed by subsection (f) below, directing that all unlawful conditions existing thereupon be abated within 30 days from the date of such notice; provided, that if, in the opinion of the zoning enforcement officer or designee, the unlawful condition is such that it is of imminent danger or peril to the public, then any authorized city representative may, without notice, proceed to abate the same, and the cost thereof shall be charged against the property as is provided in subsection (f) below.

(f) Abatement by city where owner fails to abate. Upon the failure of the owner or person in possession of any premises to abate any unlawful condition existing thereupon within the time prescribed by subsection (e) above, it shall be the duty of an authorized water resources representative to cause the removal and abatement of such unlawful condition there from. Upon the completion of such removal and abatement, the zoning enforcement officer or his designated representative shall deliver to the city tax collector a statement showing the actual cost of the abatement of the unlawful condition plus an additional fee of ten percent of the total clean up costs with a minimum of $100.00 to cover the cost of notice and cost of collection. In the event collection costs exceed $100.00, the actual costs of collection shall be taxed in addition to the minimum. The city tax collector shall thereupon mail to the owner of the subject property a bill covering the cost, if with reasonable diligence the name and address of such owner can be ascertained, and the amount of the bill shall become a lien upon the subject property, and if not paid within 30 days shall be collected as in the manner provided for the collection of delinquent taxes.

(Ord. No. 01-40, 9-13-2001)

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Editor's note: Ord. No. 01-40, adopted September 13, 2001, enacted provisions intended for use as § 12-29. For purposes of classification, these provisions have been added herein as a new § 30-168 at the discretion of the editor.

Cross references: Stagnant water; other unhealthy matter, § 30-164.

Secs. 30-169--30-200. Reserved.

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APPENDIX EE: Permitted Debris Management Sites

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